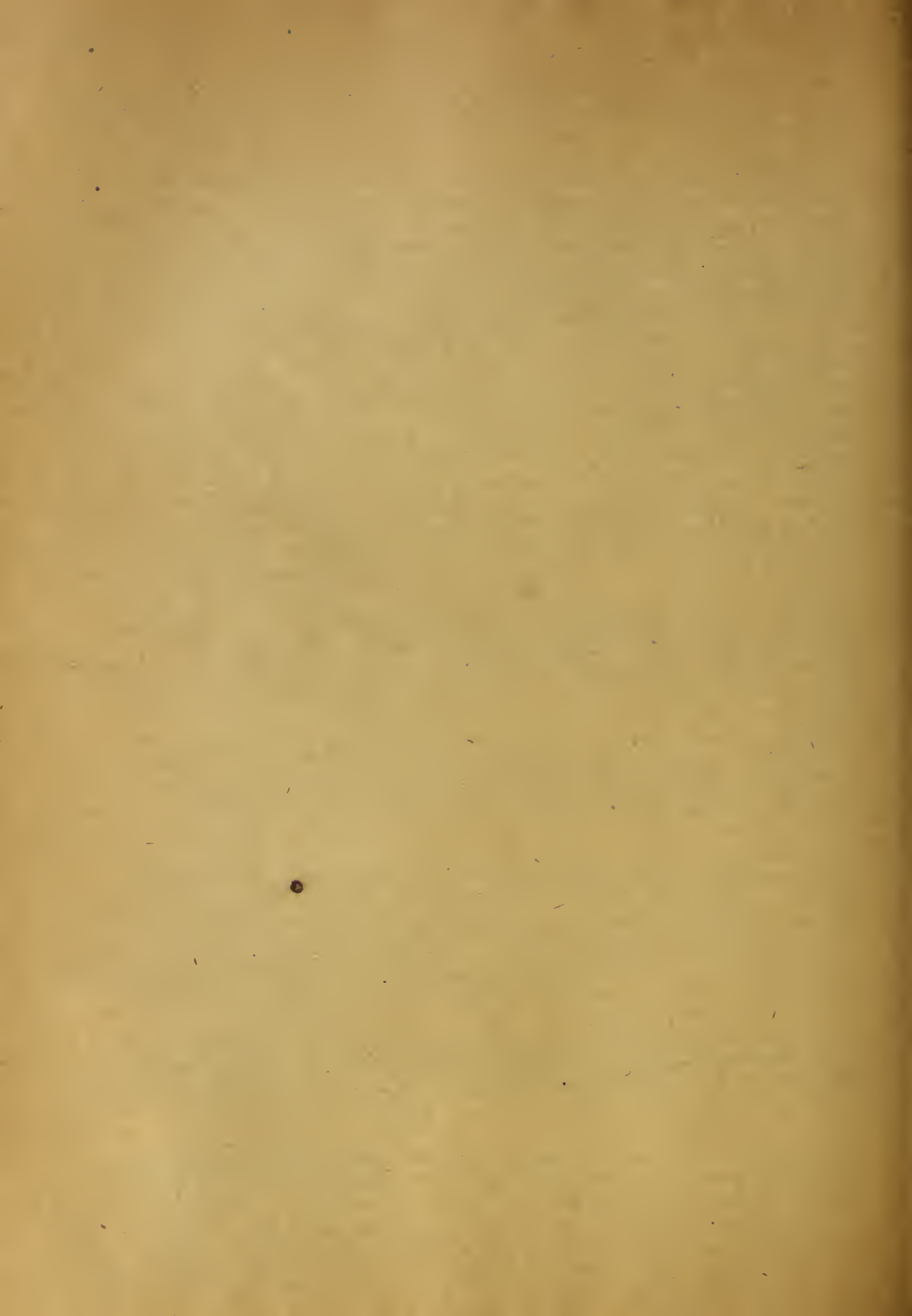


Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., January 1935

No. 1

GENERAL NOTES ¹

Game Conference Records Approval of Biological Survey.--The Twenty-first American Game Conference, held in New York City January 21 to 23 under the auspices of the American Game Association, adopted a resolution declaring that the Conference "hereby records its unqualified approval" of the efforts of the Chief of the Biological Survey, and pledges its "utmost confidence and support of such regulations as may be recommended by him for the shooting of wild waterfowl during the 1935 season." Another resolution urged Congress to appropriate sufficient funds for enforcement of the regulations. These resolutions marked the climax of a discussion of the advisability of a close season. Mr. Darling participated in the waterfowl symposium by presenting a paper on "The Wildlife Situation in the United States and Its Remedies", a synopsis of which he later broadcast over the network of the National Farm and Home Hour Program. John N. Ball and Burnie Maurek, project coordinators for the Division of Migratory Waterfowl, presented a paper on the emergency work being carried on in the Mississippi Flyway to improve waterfowl conditions, and other members of the Bureau joined in the following discussions.

The Conference opened with a research program, during which the following papers were contributed by members of the Bureau: "The Four Major Waterfowl Flyways", by F. C. Lincoln; "The Eelgrass Situation", by Clarence Cottam; "Mosquito Control and Its Effect on Aquatic Wildlife", by F. M. Uhler and Mr. Cottam, read by the latter in Mr. Uhler's absence; "Game and Forest Management Correlation in New England", by J. Paul Miller; "Wildlife Disease Research--1934", by Dr. R. G. Green and Dr. J. E. Shillinger, presented by Dr. Shillinger in Dr. Green's absence; and "Diagnosing Disease in Game", by Dr. Shillinger. On January 22 Dr. L. C. Morley participated in the game-breeding program by presenting a paper entitled "Recent Observations of Game Farm Losses." Members of the Bureau who attended the Conference in addition to those appearing on the program, were: Mr. Henderson, H. P. Sheldon, W. R. Dillon, Dr. W. B. Bell, Stanley P. Young, Edward A. Preble, Chas. E. Kellogg, F. P. Callaghan, F. L. Earnshaw, P. S. Farnham, D. A. Gilchrist, B. E. Smith, Daniel H. Janzen, and H. W. Terhune, and also Dr. T. S. Palmer, retired member.

The Conference adopted a resolution instructing the chairman to appoint a committee "representative of the United States and Canada to formulate a unified program for the taking of waterfowl in the United States and Canada in the future", and Mr. Darling was named chairman. The Conference also approved a plan for Federal control of stream pollution, voted to petition the Secretary of the Interior to set aside as permanent wildlife refuges such portions of the public domain as have been hereditary ranges for many endangered species, and asked the President to place "all renewable resources of the country under the control of a single governmental agency headed by a man whose record shows him to be familiar with the facts and problems involved with such resources."

¹See also pp. 17-18 for additional "General Notes".

Attends Funeral Rites for George D. Pratt.--Mr. Henderson was a member of the delegation that represented the American Game Conference at funeral rites for George Lupont Pratt held in Glen Cove, Long Island, on January 22. Mr. Pratt, who was well-known for his interest and activity in conservation, died on January 20 at the age of 69.

Chief Speaks.--On January 13, Mr. Darling addressed the annual meeting of the Carolina Plantation Owners' Association at Gippy Plantation, Charleston, S. C., and on December 21 he was the principal speaker at the annual winter camp dinner of the Campfire Club of America in New York City. On both occasions he discussed the work of the Biological Survey and the waterfowl situation.

THE SURVEY Staff Reorganized.--For the more efficient handling of news items submitted to THE SURVEY each month under the new organization of the Bureau, the committee of division and section representatives has been reconstituted by appropriate administrative heads as follows: Administration, E. J. Thompson; Wildlife Research, Dr. W. B. Bell for the Division, with sectional representatives as follows: Distribution and Migration of Birds, F. C. Lincoln; Food Habits Research, Clarence Cottam; Fur Resources, Charles E. Kellogg; Disease Control, Miss J. M. Broadwater; Migratory Waterfowl, Ray Soderberg; Land Acquisition, A. A. Riemer; Game Management, George A. Hossick for the Division, with sectional representatives as follows: Reservations and Agents, Miss Clara Ruth; Law Enforcement, F. P. Callaghan; Importations and Permits, Miss Mary O'Brien; Predator and Rodent Control, D. D. Green.

The material for each issue of THE SURVEY will be handled in the Division of Public Relations by the following: Managing Editor, Frank G. Grimes; Editor, Wm. H. Cheesman; Assistant Editor, Howard Zahniser; Editorial Assistant, Miss Ethel M. Johnson. Edward A. Preble, of the Division of Wildlife Research, will review the final draft of each issue for biological accuracy. The whole will be issued under the direction of H. P. Sheldon, Chief of the Division of Public Relations.

The committee members will cooperate by sending current items to Mr. Grimes from time to time as they come to attention; and not later than the 15th of the month, after reminder by Mr. Grimes on the 10th, they will send such additional items as will give a complete picture of important events reported by field and other members of the divisions up to that date. The timely current items furnished promptly as they happen will also be useful to Mr. Zahniser in the preparation of press statements and material for radio broadcasts. It is hoped that with this cooperation the issue for each month may be assembled, multigraphed, and proof-read in time to be mailed to field offices by the last day of that month.

Suggestions for the improvement of THE SURVEY will be welcome and may be offered to the editors, either directly or through the appropriate divisional or sectional members of the committee. Under departmental policy, the house organs of the bureaus must be purely of official character and serve useful official purposes. Comments reaching the Editorial Office, however, indicate that the information of official character in THE SURVEY is of such real interest to our personnel that we can readily fall in line with the departmental policy of excluding matters that are purely personal.

Wildlife Enterprises Public Concerns.--"We have come to realize in this country with its democratic tradition that game refuges, migratory-waterfowl nesting areas, and wildlife restoration enterprises must be undertaken by the people for all of the people", said Assistant Secretary M. L. Wilson in an address on "Some Aspects of a National Land Program" delivered before the American Farm Bureau Federation at Nashville, Tenn., on December 12. Mr. Wilson dealt principally with the problems of agricultural adjustment and rural rehabilitation, but included in his address a consideration of parks, forests, and refuges under public ownership. In conclusion, he discussed the significance of the National Resources Board.

ADMINISTRATION

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" series:

- No. 16. Submission of annual property returns. (Dec. 18.)
- No. 17. Excusing Federal employees from duty at 1 p.m. on December 24, and at 1 p.m. on December 31, 1934. (Dec. 18.)
- No. 18. Consolidated contracts for gasoline, fuel oil, and Diesel engine oil requirements in the United States for the fiscal year 1936. (Dec. 21.)
- No. 19. Standard Form 44 necessary to obtain exemption from payment of Minnesota State gasoline tax. (Sent to field offices in Minnesota and adjoining States only, Dec. 22.)
- No. 20. Use of Standard Form 1015B, copy of allotment ledger. (Jan. 4.)
- No. 21. Procedure to be followed in soliciting bids. (Jan. 14.)

Resigns.--Byron A. Hall, assistant messenger, resigned effective December 16, to accept a field position under the Veterans' Administration.

PUBLIC RELATIONS

NBC to Continue Conservation Day Broadcasts.--The Conservation Day programs in the National Farm and Home Hour will be continued throughout 1935, the National Broadcasting Company has announced. Half the series will deal with land-utilization problems, and the other half will be devoted to discussions of stream pollution, fishes, wildlife, forestry, and similar subjects. These programs, to which members of the Biological Survey are occasionally contributors, are broadcast every Friday at 11:30 a.m., Central Standard Time, over an NBC-WJZ network of more than 50 stations.

Official Publications and Releases. copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

- Regulations for the administration of the Upper Mississippi River Wildlife and Fish Refuge. Service and Regulatory Announcements--B.S. 80, 3 pp., December 1934. Received December 21.
- Regulations relating to game, land fur animals, and birds in Alaska, 1933-34. Alaska Game Commission Circular No. 11, 32 pp. (Slightly revised), December 1934. Received January 17.

A plan for the management of brown bear in relation to other resources on Admiralty Island, Alaska, by H.W. Terhune, Executive Officer, Alaska Game Commission, and Chief Resident Representative of the Bureau of Biological Survey in Alaska (with F.B. Heintzleman, Assistant Regional Forester, Alaska Region, Forest Service, senior author). Miscellaneous Publication No. 195, 20 pp., illus., January 1935. Received January 18.

Federal game protector killed in line of duty. Press statement 1164-35. Released December 10.

Biological Survey to administer Wichita Forest Game Preserve. Press statement 1165-35. Released December 10.

447,000 duck stamps sold. Press statement 1200-35. Released December 15.

U. S. biologists to study duck conditions in Mexico. Press statement 1221-35. Released December 18.

Phosphorus menace to ducks removed from Aberdeen area. Press statement 1234-35. Released December 21.

Three new animal films. Press statement 1259-35. Released December 27.

Canvasbacks by Benson to fly on duck stamps for next year. Press statement 1250-35. Released December 29.

Lake Mattamuskeet made a refuge for waterfowl. Press statement 1383-35 Released January 16.

Emergency funds aid wildlife of nation; Chief Darling of the Biological Survey reports year's accomplishments in conservation. Press statement 1368-35. Released January 19.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Ashbrook, F. G. The fur trade learns a lesson. Fur Age Weekly 26 (7): 5. Nov. 26, 1934.

----- Facts for fur farmers. Hunter-Trader-Trapper 69 (5): 51. Nov. 1934.

Burleigh, T. D. The breeding range of the painted bunting in South Carolina. Auk 52: 95. Jan. 1935.

Cottam, Clarence. Whitehead on "The effect of arsenic, as used in poisoning grasshoppers, upon birds" [by F. E. Whitehead, Okla. Exp. Sta. Bull. 218, 54 pp., June 1934]. (Review.) Auk 52: 118-119. Jan. 1935.

Jewett, S. G. Nesting of the orange-crowned warbler in Oregon. Condor 36: 242. Nov./Dec. 1934.

----- The Anthony green heron again. Condor 36: 246. Nov./Dec. 1934.

----- The season (ornithological): Portland (Oreg.) region. Bird-Lore 36: 377-378. Nov./Dec. 1934.

Kelso, Leon. A key to species of American owls. Biological Leaflet No. 4: 1-101, illus. Nov. 1934. [Contains the following papers: An artificial key to owl genera represented in the Americas, pp. 11-28; List of the owls of the Americas, by Estelle H. Kelso, pp. 31-68; Notes on the habits of Cholibia screech owls, pp. 69-74; The relation of the diurnal habit to latitudinal distribution, habitat, and abundance of American owls, pp. 75-85; and Notes on the habits of the spectacled owl and its relatives, pp. 87-96.]

- Gorsuch's "Life History of the Gambel Quail in Arizona" [by David M. Gorsuch, Univ. Ariz. Bull. Vol. 5, No. 4, Biol. Sci. Bull., pp. 1-89, May 15, 1934]. (Review.) Auk 52: 117-118. Jan. 1935.
- Lid on Food of Taimyr ptarmigans. [Crop contents of ptarmigans from Taimyr, by Johannes Lid, The Norwegian North Polar Expedition with the "Maud" 1918-1925, Scientific Results, Vol. 5, No. 2, pp. 3-7, Sept. 20, 1933.] (Review.) Auk 52: 116. Jan. 1935.
- McAtee, W. L. Economic ornithology in recent entomological publications. Auk 52: 115-116. Jan. 1935.
- Manuel on food of the Philippine weaverbird. [Observations on the Philippine Weaver, Munia jagori Martens, II: Foods and feeding habits, by Canuto G. Manuel, Phil. Jour. Sci. 53: 393-418, Apr. 1934]. (Review.) Auk 52: 116-117. Jan. 1935.
- Letter to the Editor on preservation of species in aviaries. Auk 52: 128-129. Jan. 1935.
- Mills, E. M. The control of orchard mice. Rural New Yorker 93 (5309): 702. Dec. 8, 1934.
- Oberholser, H. C. The season (ornithological): Washington (D. C.) region. Bird-Lore 36: 371-372. Nov./Dec. 1934.
- Scheffer, Theo. H. Some food resources of our waterfowl in the Pacific Northwest. Murrelet 15: 63-68, illus. Sept. 1934.
- Templeton, G. S. Exhibit features rabbit meat. Amer. Rabbit Jour. 5: 3. Jan. 1935.
- Ward, J. C., Munch, J. C., Spencer, H. J., and Garlough, F. E. Studies on strychnine, III: The effectiveness of sucrose, saccharin, and dulcin in masking the bitterness of strychnine. Jour. Amer. Pharm. Assoc. 23: 984-988. Oct. 1934.

Temporary Appointment Terminated.---After serving the Bureau for two months under temporary appointment as an assistant in the Division of Public Relations, devoting special attention to CCC activities and other emergency work of the Biological Survey, George Winfield Hurd on December 15 returned to his earlier work for newspapers.

WILDLIFE RESEARCH

Lectures on Wild Fowl.---Dr. H. C. Oberholser spent two weeks during December in the Southeastern States lecturing on waterfowl and explaining the conservation plans of the Biological Survey. Visiting Memphis and Nashville, Tenn.; Atlanta, Ga.; Charleston, S. C.; and Birmingham, Ala., he found a very general desire for information on wild fowl and the present waterfowl crisis, as well as great interest in the program of the Biological Survey. He again left Washington on January 16 for Columbus, Ohio, where he addressed the State convention of the Izaak Walton League. This was the first engagement of a trip through the Mississippi Valley States, from Michigan and North Dakota to Texas and Louisiana. His itinerary for February is as follows: Chicago, Ill., Feb. 1; Champaign, Ill., Feb. 3; Indianapolis, Ind., Feb. 6; LaCrosse, Wis., Feb. 8; Minneapolis, Minn., Feb. 11; Fargo, N. Dak., Feb. 14; Des Moines, Iowa, Feb. 20; St. Louis, Mo., Feb. 26; Columbia, Mo., Feb. 28.

Make Observations in Mexico.---E. A. Goldman and his brother Luther J. Goldman entered Mexico at Laredo on December 20, for a study of waterfowl conditions in that

country. They have established headquarters at Mexico City and report that they have made interesting and helpful contacts with sportsmen in their field work in sections where waterfowl are accustomed to congregate, and that these men recognize the steady decline in the waterfowl population in that country. In regulating the kill of ducks, the Mexican Government has enacted legislation prohibiting the use of the armada, or series of batteries, which were formerly used extensively in market hunting. Prohibition of this destructive practice is a most important step in waterfowl conservation.

Inspects Elk Herds in Southwest.--O. J. Murie made an extensive trip in December through southern Oregon, California, Arizona, and Utah, checking up on the native and introduced elk herds of the Southwest. He reports having obtained information of much interest and value in its bearing on the status and welfare of the Southwestern elk herd.

Plans Visit to the States.--L. J. Palmer and his wife, stationed at College, Alaska, are planning a trip during February and March to visit relatives in the States of Washington and Illinois, and also a trip to New York, which will probably include a visit to Washington, D. C., for conferences regarding the reindeer, musk-ox, and mountain-sheep investigations in Alaska, and other plans for wildlife research now under consideration.

Plans for Wildlife Refuges in Arizona.--Dr. Walter P. Taylor, with headquarters at Tucson, Ariz., has recently been engaged checking up on conditions of the public domain in Arizona to locate grazing areas that should be considered for designation as wildlife refuges.

Trouble with "Adirondack Wolf" in New York.--The "Adirondack wolf" problem has again cropped out this winter, and the killing of several animals of questionable identity has been reported. Most of these have been assumed to be dogs "gone native". Two specimens, killed near Vischer Ferry, N. Y., were recently sent in for identification by Willet Randall, a scientific collector, of North Creek, N. Y.; one of these, a skin with skull, was identified by Dr. H. H. T. Jackson as a coyote; the other, skull only, proved to be a dog.

Edits Parts of New Encyclopedia.--All mammal parts of the recently issued 10 volume National Encyclopedia were edited by Dr. Jackson.

Speaks on D. C. Warblers.--Arthur H. Howell on December 19 addressed the Woodside (Md.) Womens Club, on "The Warblers of the District of Columbia".

Observe Winter Bird Life in Delaware.--Thomas D. Burleigh, Arthur H. Howell, and Allan J. Duval spent January 4 and 5 in Sussex County, Del., studying the bird life on this part of the Atlantic coast, on which little has ever been published for this section at this season. Clear and fairly warm weather probably accounted for the presence of the many birds observed. These included the migrant shrike, Eastern Savannah sparrow, Ipswich sparrow, Eastern song sparrow, and Eastern snow bunting. No

ducks were observed except a few baldpates on the State Refuge near Rehoboth Beach.

Distribution and Migration of Birds

Waterfowl Reports Indicate Great Decrease.--Several hundred reports from cooperative observers indicate a reduction in the waterfowl population throughout the country, although from a few of the highly favored concentration areas the reports still show large numbers of birds.

Make Questionnaire-study of Staggered Season and Baiting.--Replies to inquiries sent out regarding the effects of baiting and of the staggered-season provisions of the hunting regulations during the open seasons on waterfowl are being received from observers throughout the United States. These reports are being summarized and studied, but the partial results so far obtained do not warrant conclusions at present.

More "Aged" Birds Reported.--A lesser scaup duck (464649) at least 8 years old, banded at Tillamook Bay, Oreg., on February 10, 1927, was retrapped at the same station on December 13, 1934.

A blue jay (288316), banded at Baldwin, N. Y., on November 26, 1925, was found dead in the same locality in June 1934, and so was at least 9 years old.

A junco (132257), banded at Oliviera, N. Y., on October 21, 1926, was retrapped at the same station on August 31, 1934, being at that time at least 8 years old.

Gull Banded in Holland Recovered in Labrador.--Dr. Alfred O. Gross, of Bowdoin College, Brunswick, Maine, has reported the capture of a black-headed gull at Stag Harbor, Labrador, during September 1933. The bird carried a band inscribed "Cogels Ossendrecht Holland 851." Upon communicating with a Dutch correspondent it was learned that these are the private bands of Joseph Cogels, a Belgian who owns property near the village of Ossendrecht, on the frontier of Holland. The gull was banded on his property as a downy chick on June 21, 1932. While other birds of this species banded in Europe have been recovered in the Western Hemisphere, all have been from tropical areas. This is the first Labrador record for this species.

Other banding recoveries of interest include the following: Common tern (B306722), banded June 27, 1931, at Large Weepectet Island, Gosnold, Mass., recovered December 5, 1934, at Cumana, Venezuela; common terns (B399281, B396943, 34-320573, and 34-321349), all banded June 26, 1934, at Tern Island, Chatham, Mass., were also recovered December 7 and 9, at Cumana, Venezuela; common tern (C305529), banded June 27, 1934, at Ram Island, Mattapoissett, Mass., recovered in September 1934 at St. Philip, Barbados, B. W. I.; gull (A572002), banded June 17, 1934, at Woody Island, Lake Bowdoin, Malta, Mont., killed December 5, 1934, at Culiacan, Sinaloa, Mexico; gull (A571828), also banded June 17, 1934, at Woody Island, recovered on the Rio Sextin, Municipio de Inde, Durango, Mexico, January 7, 1935; clay-colored sparrow (L53083), banded May 2, 1934, at Northville, S. Dak., recovered December 23, 1934, at Cautla, Jalisco, Mexico.

Addresses Boston Meeting.—F. C. Lincoln addressed the joint meeting of the Northeastern Bird Banding Association and the Federation of Bird Clubs of New England, at Boston, Mass., January 14, on the subject, "The Four Major Waterfowl Flyways."

Food Habits Research

Observes Waterfowl on Chesapeake Bay.—Clarence Cottam left Washington on December 26, to continue waterfowl studies on the Susquehanna Flats and the Eastern Shore of Maryland and Virginia, and returned on January 2, reporting a few fair concentrations of diving ducks but a marked decrease in the numbers as compared with last year. This decrease was especially noticeable among redheads, canvasbacks, and lesser scaups, which usually raft in large numbers. As a consequence fair numbers were seen localized in a few areas, but many areas that formerly had large rafts of birds were entirely deserted. The kills on the Eastern Shore were reported as far below those of last year. In one important ducking county, a local warden stated that it was doubtful whether a dozen redheads, canvasbacks, and lesser scaups had been taken.

Continues Eelgrass Study.—On January 10, Mr. Cottam left Washington to inspect proposed refuge areas and to continue studies of the waterfowl and eelgrass situation in the Pamlico Sound area in North Carolina.

Studies Waterfowl along Atlantic Coast.—Neil Hotchkiss spent the period December 5 to 28 on an investigation of waterfowl conditions in the coastal region from the Potomac River to northern Georgia. He reports that, except for Canada geese and pintails, most of the important species of waterfowl were less numerous than in November and December 1933.

Examines Refuge Sites in Gulf States.—A. C. Martin continued his examinations of prospective refuge sites, spending most of December along the Texas coast, and returning to Washington January 1 after a brief stay in Louisiana. He encountered encouraging waterfowl conditions near the coast of southern Texas, but reported that elsewhere, as far east as Louisiana, storms had temporarily ruined much of the natural food resources, with a consequent diminution of the duck population.

Completes Waterfowl Studies in Lower Mississippi Flyway.—F. M. Uhler returned to Washington on January 12, after completing the examination of prospective refuge sites in Louisiana, Arkansas, Tennessee, and Illinois. En route to Washington he examined areas recommended in Indiana. While in Louisiana, in company with M. F. Harmon, of Barksdale Field, he inspected Flagg Lake and other water areas at the Army Air Corps Reservation at Shreveport, and made recommendations for the improvement of conditions for waterfowl on the reservation. He reports, with few exceptions, a decided decrease in waterfowl in the lower Mississippi flyway from the numbers of last year.

Investigates Waterfowl Depredations upon Shellfish.—W. F. Kubichek left Washington on January 2 to inspect waterfowl-refuge areas in Massachusetts and also to make a study of the diving ducks in relation to the shellfish industry along the coast of that State.

Attends Bird Club Meeting.--Miss Phoebe Knappen attended the annual meeting of the Wilson Ornithological Club, at Pittsburgh, Pa., December 28-29. She reports a successful meeting and a lively discussion and interest in the papers dealing with hawks and owls.

Entomologist Appointment Terminated.--The indefinite appointment of J. R. Malloch was terminated effective December 31, and arrangements have been made to provide him quarters where he can continue his studies. Mr. Malloch has served the Bureau in the capacity of entomologist in food-habits investigations since June 1, 1921. During that time, in addition to making numerous identifications of insect fragments from bird and mammal stomachs, he has contributed much to the existing knowledge concerning the taxonomy of the Diptera of the world. He is ranked as one of the outstanding men in his field and up to the present time has published in excess of 400 papers dealing with the classification of these insects.

Food Habits Laboratories Report Progress.--The Food Habits Research Laboratory in Denver, Colo., reports the accession of 5,383 stomachs, representing 7 species of birds and 13 species of mammals. The number of mammal stomachs collected since the establishment of the laboratory now totals 16,277, of which 6,322 were examined during the year. Of these, 1,880 were empty, and a large part of the remainder consisted of coyotes (3,641) and bobcats (60). A total of 271 bird stomachs of 14 species were analyzed in connection with studies of the white-necked raven and of shorebirds. The Washington laboratory recorded the stomach contents of 1,170 individuals of 67 bird and mammal species, bringing the total number of stomach analyses to 117,346. More than 359 pellets of 4 species of birds and 4 fecal examinations of reptiles also were made. The 216,855 lots of material for examination have been catalogued to date in the Washington laboratory since its establishment 50 years ago, as follows: Birds, 200,753; mammals, 7,794; reptiles and amphibians, 5,031; pellets, 3,237 lots; miscellaneous (nest debris, intestinal contents, regurgitated and fecal material), 40 lots.

Consults Food Habits Files.--J. M. Valentine, of the University of North Carolina, at Chapel Hill, spent November 7 in the Washington office obtaining data on the bird and mammal enemies of certain beetles. Special information was desired and obtained on the predators of tiger beetles and ground beetles.

Fur Resources

Director of Experiment Station Resigns.--Dr. Karl B. Hanson, director of the U. S. Fur Animal Experiment Station, at Saratoga Springs, N. Y., resigned January 5, to accept a position with the Fromm Bros., Nieman and Co., one of the largest fox producers in the world, with ranches at Thiensville, Wis. Dr. Hanson had been employed by the Bureau in fur-resource work since 1917, and took up his duties at the Fur Animal Experiment Station, which was first established at Keeseville, N. Y. Although his work was chiefly concerned with the production of fur animals in captivity, much of his time was devoted to research problems in the diseases and parasites of these animals. In his new position Dr. Hanson's main undertaking will

be to reduce and prevent losses from distemper and encephalitis, which have caused losses of from 10 to 18 percent annually in the foxes to be pelted. The Bureau wishes Dr. Hanson the best of success in his new position.

Returns from Fur Animal Experiment Station.--Frank G. Ashbrook recently returned from the Fur Animal Experiment Station, at Saratoga Springs, N. Y., where he and Chas. E. Kellogg were arranging for the care of the work after the resignation of Dr. Hanson. Walter G. McBlain, Jr., will for the present act as director. There were 26 silver-, 31 cross-, and 5 red-fox, 14 mink, 4 marten, and 2 fisher pelts taken this season. After these pelts are properly described and graded at the station they will be sent to the New York fur market. Twenty foxes were started on a feeding experiment this month to continue the investigational work as to the value of meat by-products as substitutes for part or all of the raw-meat portion in the rations. The results thus far obtained have been encouraging.

Attends Fur Sale and Fox Farmers' Meeting in New York.--Mr. Ashbrook was present at the sale of 18,000 silver-fox pelts by the New York Auction Company on January 14. There was an active demand for the pelts, with prices holding to strong levels, especially for full silver pelts. The top price was \$200, and there was a 10-percent advance over the prices prevailing during the past few months. The quarter silvers sold well also, but the darker colored pelts and the blacks failed to attract much interest. About 100 fox farmers who are members of the Milligan and Morrison Association attended the sale for the purpose of obtaining first-hand information on grading and selling methods. At a meeting held in connection with the sale, representatives of various phases of the fur business spoke to the breeders. Mr. Ashbrook spoke on work of the Bureau that is of direct benefit to fox farmers and the fur trade.

Reports on Trapping Licenses.--Replies are now being received from State game commissions to a questionnaire asking for information on the number and kinds of licenses issued in their respective States. The purpose is to obtain data on licenses and also to determine if possible the sums spent in the various States on the production and conservation of fur animals.

Disease Control

Investigates Losses of Deer.--Dr. J. E. Shillinger, with F. N. Jarvis and D.D. Green, of the Division of Game Management, spent the week of December 13-20 in and about the Allegheny National Forest investigating reports that losses among deer were being caused by use of poison in rodent control. Such work had been done on national-forest lands only. The aid of local sportsmen, who were concerned over the losses, and of State game protectors was given in locating carcasses of deer. Unfortunately all the animals found had been dead so long that definite diagnosis as to the cause of death could not be made, but chemical analyses of stomach contents, made at the Control Methods Research Laboratory, at Denver, demonstrated that death was not due to strychnine poisoning. It was evident that most of the losses occurred during the small-game hunting season and that some of the carcasses had been left by hunters who had been shooting illegally.

MIGRATORY WATERFOWL

Restoration Program Progressing.---Final determinations of the exact project boundaries have now been made, and the plans and specifications for the construction work necessary to the fulfillment of the Bureau's plans for its major refuges have been received in Washington. The Division is directing its energies toward the early completion of the tremendous task of preparing invitations to bid, so there will be no delay in this important part of the restoration work. It has been found necessary to employ additional temporary stenographic and clerical assistance so that bids may be handled as rapidly as the project directors on the North Dakota, South Dakota, Minnesota, and Montana projects can complete the construction plans and material specifications for their respective projects. It is hoped that, in the near future, construction work on these major refuges will have become an actuality.

New Areas Approved.---Since the last issue of THE SURVEY, J. C. Salyer has made an inspection trip through the southern part of the Mississippi Valley flyway and has set up and approved for immediate acquisition and development nine additional migratory waterfowl refuge units in that area. These areas, involving more than 100,000 acres of water and marshlands, are located in the States of Illinois, Missouri, Tennessee, and Louisiana. Topographic-survey and land-examination parties have already been directed to these areas to assemble necessary data, preliminary to actual acquisition and construction work.

LAND ACQUISITION

South Central States Headquarters Opened.---Operations in the acquisition of refuge areas have been extended to the south central States with headquarters at St. Louis, Mo. Carey H. Bennett has been transferred from Mitchell, S. Dak., to St. Louis, and William T. Krummes placed in charge of the work at Mitchell.

Headquarters Transferred.---Doren E. Woodward, formerly on the Arrowood and Jim Lakes project in North Dakota has been placed in charge of the work in Wisconsin and Michigan with headquarters at Madison, Wis.

FERA Projects Submitted.---The following additional proposed projects have been submitted to the Federal Emergency Relief Administration for approval: Mud Lake, Minn.; Niobrara, Neb.; Upper and Lower Souris, N. Dak. There were also submitted enlargements to the proposed Medicine Lake refuge in Montana, and the proposed Valentine Lakes refuge in Nebraska.

FERA Projects Approved.---Approvals have been received from the Federal Relief Administration of the following proposed projects. Lostwood Lakes, N. Dak.; Lower Souris, N. Dak.; Lake Andes, S. Dak.; Savannah River, S. C.; and Niobrara Reservation, Nebr.

Movements of Personnel.--Charles S. Cook, who has been employed on the various refuge projects under the NIRA, and more recently at the White River Refuge in Arkansas, has reported for duty at the Washington office. Bert J. G. Tousey has reported for duty at Washington after conducting surveys on the Upper Mississippi River Wildlife and Fish Refuge.

New Appointments Made.--The following personnel has been added to the force of this Division: Miss Mary Miller, Miss Leah Lloyd, Mrs. Emily Hilbert, and Miss Frances H. Kreis.

GAME MANAGEMENT

Refuge Administration

Elk Feeding Begins.--Weather conditions made it necessary to feed the elk at the Elk Refuge, Wyo., beginning on the first of January. By the end of the week about 5,500 elk had gathered on the two feeding grounds. The Wyoming State Game Department, as heretofore, is assisting in the work and has established a feeding ground south of the town of Jackson.

Mountain Sheep Transferred for Stocking.--Almer P. Nelson, of the Elk Refuge, has sent the following account of the transfer of mountain sheep from the vicinity of the refuge to the Big Horn Mountains, Wyo.: "During the latter part of November the State Game Department captured 20 mountain sheep on Flat Creek, about 6 miles east of the east boundary of the Izaak Walton League addition to the Elk Refuge. In preparation for taking the sheep, the State constructed a post and pole corral about 9 feet high and 30 feet in diameter. From the corral a woven-wire fence was put up to serve as a wing and was extended from the corral gate up the mountain to a high ledge of cliffs and fastened to a place on the cliff where it was perpendicular for several feet. Another wing was constructed from the corral parallel with the slope of the mountain to form a drift fence in getting the sheep into the corral. The ledge of cliffs above the corral extended along the steep mountainside and it was placed where 60 or 70 sheep were often seen during the fall and winter months. The sheep are protected in that locality and have little fear of the cars that travel on the road. On the morning of November 26, I went with the local State wardens and other men to assist in getting the sheep into the corral should they be in a location where they could be driven. When we reached the corral there were 14 sheep grazing within the wings and 2 fairly large rams and several ewes and lambs on the opposite side of the wings. We left the cars, and seven men were placed a certain distance apart up the face of the mountain to the bottom of the high cliff, and working our way toward the corral it did not take long to force the 14 sheep down into it. We did find, after the sheep were placed in the corral, that they were good climbers. Some would climb the rails of the fence, but the two top rails were sloped in and this prevented climbing over the top. They were lassoed and placed in a truck and shipped to Sheridan, Wyo., where they were liberated in the Big Horn Mountains. Only three attempts were made in capturing the 20 sheep. The first day 7 were corralled, and the second day the sheep were not in the proper location for corraling. The sheep were all handled without injury in

loading, and they arrived at their destination in good condition. Of the 20 sheep shipped, 11 were ewes, 7 were lambs (of which 3 were rams), and 2 were rams that will be 2 years old next spring."

Establishment of the Fort Jefferson National Monument, Fla.--The President, on January 4, signed a proclamation establishing the Fort Jefferson National Monument, comprising the Tortugas group of keys off the southern coast of Florida. In the interest of coordination, the Department of Agriculture consented to the vacating of the Tortugas Keys Bird Refuge, which included this group of keys. The national monument will be administered by the National Park Service, Department of the Interior. As the establishment of this national monument automatically gives complete protection to its bird and animal life, the birds frequenting the keys comprising the former bird refuge will be given protection.

Fugitives Arrested and Convicted.--The three Missouri residents who, as reported in the last issue of THE SURVEY, had escaped from the Fountain City (Wis.) jail on November 10, after being arrested by rangers of the Upper Mississippi River Wildlife and Fish Refuge and Wisconsin conservation wardens, were subsequently arrested for burglarizing a filling station at Linn Creek, Mo., and upon conviction were sentenced to serve five years in the Missouri State Penitentiary. A new automobile, stolen in Winona the afternoon the trio broke jail at Fountain City, was later recovered in a Missouri town, and authorities believe the men made their way south in this car.

Additional Upper Mississippi Violation Cases Obtained.--Twelve additional cases involving violations of the Upper Mississippi Refuge regulations and State game laws were obtained by refuge rangers during December, making a total of 69 cases between October 1 and December 31. Of the 12 new cases, 2 involving illegal trapping on the refuge are pending in Federal court, the defendants having been arraigned before a United States commissioner at Dubuque, Iowa, and bound over under bonds of \$500 each. Another defendant arrested for killing a raccoon on the refuge was bound over to Federal court by a United States commissioner at Dubuque, Iowa, under \$500 bond. For hunting during close season, two residents of LeClaire, Iowa, entered pleas of guilty in State court and were sentenced to pay fines of \$10 and costs of \$3.85 each. For trapping without a nonresident license, a resident of Marquette, Iowa, entered a plea of guilty in State court at Prairie du Chien, Wis., and was sentenced to pay a fine of \$50 or in default to serve 40 days in jail. Sentence was suspended, however, for the reason that the defendant was a subject of relief, and he was placed on parole for one year with the requirement that he report to the court once each month. Three Iowa residents were arrested for hunting in close season in Wisconsin but were found not guilty at a trial held at Prairie du Chien on December 5. Three residents of Prairie du Chien were apprehended for taking game fish contrary to State law. Their cases are pending. Evidence in these cases was obtained by Rangers Lundberg, Lawrence, and Cheney and Deputies Frerichs and Snyder.

Birds Fed Grain Raised on Refuge.--Artificial feeding of upland game birds, including pheasants, quail, and prairie chickens, carried on during winter months in recent years on the Upper Mississippi Refuge, is being continued this year with

considerable success. For this purpose areas of the refuge adaptable to growing corn and other crops were planted during the past season to corn and Wheatland milo. Part of the grain was harvested, and the remainder was left standing as a natural source of food for the game and other birds. The refuge area has been heavily blanketed with snow since the latter part of November, resulting in a continued need for artificial feeding.

Motion Pictures of Duck Concentration Exhibited.--During the prolonged concentration of wild ducks in the lower Winneshiek closed area this past fall, Ranger Lawrence succeeded in obtaining two reels of motion pictures containing some good shots of birds. On December 10, he exhibited these pictures at a meeting of the Kiwanis Club at Lansing, Iowa, in connection with which the Allamakee Journal of Lansing, under date of December 12, had the following to say:

"They were Harley's first attempt at taking pictures of the kind and he came out remarkably well. He estimates there were around 15,000 ducks, mostly mallards, in the lakes where he got his camera working, and the hunters present (at the meeting) said he must have got them all in the pictures. The birds had to be scared up to make the shots and quickly flew back to their unmolested haunts. Pioneer hunters long since gone to their rewards would have been delighted to see this reminder of what the whole Mississippi bottoms were when ducks were plentiful a few decades ago."

Ranger Lawrence also exhibited the pictures at a meeting of the local game protective association at Jesup, Iowa, on December 19.

Survey Occupies New Quarters at Winona.--The offices of the Biological Survey at Winona, Minn., comprising those of the regional director for Region 4 and the Upper Mississippi Refuge, were moved on December 12 to new quarters in the recently constructed annex to the Federal building. The new quarters, in addition to affording better working conditions, also provide a more efficient arrangement of the offices and the concentration of all the refuge files and records where they may be more readily accessible.

In reporting the moving of the Bureau's Winona offices to new quarters, the conductor of "The Voice of the Outdoors" column in the Winona Republican-Herald on December 12 wrote as follows: "We found George Tonkin, regional director, hanging a picture of a boy on the wall. It was just an ordinary boy picture, the cover of some magazine. We asked him, 'Why the picture of the boy?' He said, 'That's the guy we are working for, the average American boy.' The picture, he told us, has a history. In his early days of conservation work, when things were mighty discouraging and it seemed that conservation was getting no place, he had the blues and was about to give up the ship. He spied on his desk a magazine with this smiling boy on the cover and decided he was worth working for. Since that time he has kept the picture framed as an inspiration in his conservation work. George works so that the boys of today when grown up will have more outdoors than we have today."

Law Enforcement

Sale of Duck Stamps Mounts.--Reports submitted to the Survey indicate that to and including December 31, the sale of migratory waterfowl hunting stamps throughout

the United States aggregated 573,866. Under the law 90 percent of the proceeds of the sale of these stamps is earmarked for the acquisition of inviolate migratory waterfowl sanctuaries. The Survey's fund for this purpose will thus be augmented by \$519,479.40.

Importations and Permits

Increased Importations of Canaries.--Approximately 37,000 canaries were imported in December for the Christmas trade, averaging about 1,200 a day for the month. One of the larger shipments contained 8,350 canaries, and another 6,400.

Predator and Rodent Control

Nevada State Rabies Commission Reports.--The Biennial report of the Nevada State Rabies Commission for the period July 1, 1932, to June 30, 1934, inclusive, contains a summary of examinations made by the State Veterinary Control Service for the years 1915 to 1933, inclusive. The results, as follows, show a steady decline in the number of positive cases of rabies examined:

<u>Year</u>	<u>Positive</u>	<u>Negative</u>	<u>*Rejected</u>	<u>Total</u>
1915	80	21	9	110
1916	151	66	10	227
1917	82	53	7	142
1918	44	40	9	93
1919	30	23	6	59
1920	32	22	7	61
1921	33	19	5	57
1922	42	32	5	79
1923	19	19	3	41
1924	10	15	2	27
1925	3	11	2	16
1926	16	19	2	37
1927	15	25	5	45
1928	9	11	4	24
1929	6	19	--	25
1930	4	14	4	22
1931	6	11	1	18
1932	6	14	--	20
1933	<u>8</u>	<u>9</u>	<u>2</u>	<u>19</u>
Totals	596	443	83	1,122

*Discarded because condition when received made examination impossible.

Predatory-animal control work was originally inaugurated by the Bureau in Nevada in 1915 for the primary purpose of stamping out a severe outbreak of rabies. From the above number of positive cases of rabies examined it appears that the project in this State since 1915 has been largely responsible for the general control of rabies.

Montana FERA Cooperates in Prairie-dog Control.--On July 18, 1934, the Montana Relief Commission authorized the expenditure of \$63,878 for the control of prairie dogs in eastern Montana. This project was carried on under the supervision of R. E. Bateman, district agent in Montana. In the project, which closed on November 24, more than 149,000 pounds of poisoned grain were required to treat approximately 450,000 acres of prairie-dog infested territory. The total cost of the project amounted to \$48,560, and Mr. Bateman reports most excellent results over the entire area.

Lloyd L. Thompson Dies.--The sudden death on November 24 of Lloyd L. Thompson, formerly assistant in predatory-animal control work in Montana, is reported by District Agent Bateman. Mr. Thompson was the first man to take a mountain lion for the Survey in that State, and he held an enviable record as a hunter. Before his death he had arranged to accompany the Harkness Asiatic Expedition, which probably would have taken him on a two-year trip, beginning next April. It has been several years since he was employed by the Survey, but about two years ago he collected mountain-goat specimens for the Bureau. He is survived by two brothers, Carrol Thompson and Ronald Thompson, both of whom are employed as predatory-animal hunters at this time.

Beavers Transplanted on Malheur National Forest.--Stanley G. Jewett, district agent in Oregon, reports that live-beaver transplanting was brought to a close on the Malheur National Forest in Oregon late in November, after 40 animals had been transplanted. Similar work is now being conducted in Lake County, Oreg., where beavers are being transplanted on the Fremont National Forest. Mr. Jewett reports excellent cooperation in this work from the State Game Commission and from the Forest Service.

Coyote Thief Caught.--Government hunters in Washington had 15 coyotes stolen from their trap and poison lines in November, reports Leo K. Couch, district agent in that State. Theft of traps and the animals in them have been discouraging to hunters for years. Mr. Couch reports, however, that Hunter Frank Reed came upon a thief near Vantage Bridge, in the act of skinning a coyote that had been taken from one of his traps. An arrest was made and the culprit taken before a justice in Ellensburg, where he was fined \$25 and costs, a total of \$33.12. Not having the fine, he was required to spend 11 days in jail.

Utah District Sends Cubs to National Zoological Park.--A FERA hunter in Utah was successful in capturing alive three mountain-lion cubs, which were sent by District Agent George E. Holman to the National Zoological Park, Washington, D. C. These lion cubs were gratefully received by the park authorities and should make a valuable addition to the zoo.

Hunter Causes Arrest for Game Violations.--In connection with his regular predatory-animal control work, Hunter Carl Laffoon, of Montana, was recently instrumental in causing the arrest of two game-law violators, one of whom was sentenced to pay a fine of \$27.50 and to spend 30 days in jail when, on November 30, he plead guilty to the possession of game without a license. The other, after a plea of guilty to a charge of killing and having in his possession a deer without a tag and without

his possessing a hunting license, was sentenced to 60 days in jail and to pay a fine of \$60. Both cases were tried before a justice in Troy, Mont., the chief of police of which place reports that information leading to the arrest of the two men was furnished by Hunter Laffoon.

Indian Service ECW Project Approved in Oklahoma.—A. E. Gray, district agent of the Arkansas-Oklahoma District, reports that \$18,200 of ECW funds have been set up for a prairie-dog control project on Indian lands in Oklahoma. It is estimated that 150,000 acres of infested lands will be treated.

FERA Cooperates in Predator Control.—The FERA is cooperating in predatory-animal control work in four States: In Idaho it provides for 100 cooperative men; in Utah, 75 men; in Montana, 50 men, and in Wyoming, 30 men. This cooperative undertaking comes at a most opportune time and should assist materially in checking the increase in predatory animals within these States.

Administrative Change in California.—Effective January 1, 1935, Charles G. Poole, district agent in charge of predatory-animal control in California, was placed in charge of both predator and rodent control work in the California district, with Joseph Keyes acting as assistant district agent in rodent control. This change in administration of game-management work in California has been inaugurated to simplify administrative procedure and is in keeping with the Bureau's general policy.

ADDITIONAL GENERAL NOTES

Survey Men Fete Former Chief.—On Wednesday evening, January 30, as this issue of THE SURVEY was in press, the men of the staff of the Bureau tendered a dinner at the Cosmos Club to their former chief (1927-34), Paul G. Redington, now of the Forest Service, on the occasion of his departure for Cody, Wyo., to take charge of the Shoshone National Forest. In addition to 34 members of the Washington staff, there were present H. W. Terhune, of the Alaska Game Commission; Elton C. Hotchkiss, of the Upper Mississippi Refuge staff; Ernest G. Holt, former member of the Survey and now with the Soil Erosion Service; and Carl D. Shoemaker, secretary of the Senate Committee on Conservation of Wildlife Resources. The dinner was informal, with no speeches other than introductory remarks by Frank G. Ashbrook, of Fur Resources, chairman of the committee in charge, and an expression by Mr. Darling of the sentiments of the Survey. Announcement of Mr. Redington's selection to head this important work of the Forest Service was made by Mr. Darling at the weekly staff meeting of the Survey the day before, and arrangements were promptly made and carried through for the farewell dinner, as Mr. Redington will leave Washington for his new post on February 2. He has the best wishes of all members of the Survey for joy in his new undertaking, a line of work for which all his former experience has so well fitted him.

Addresses New England Conference.—Mr. Henderson on January 26 spoke at the New England Game Conference in Boston, Mass., on "The Waterfowl Situation." After summarizing field reports to the Bureau, he said: "There are few well-informed persons

who will not agree that our waterfowl are in a deplorable condition." The conservation of existing breeding stocks, he pointed out, is almost solely a matter of promulgating and enforcing laws and regulations to reduce the kill by hunters. He discussed at length the restoration work, calling it "the most prominent part of the present program."

Meets with Bison Society.--Frank L. Earnshaw represented the Bureau at the annual meeting of the American Bison Society in New York on January 24. Dr. T.S. Palmer, retired member of the Bureau and a member of the Bison Society, was also in attendance.

THE SURVEY

LIBRARY RECEIVED

MAR 2 - 1936

U. S. Department of Agriculture

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., February 1935

No. 2

GENERAL NOTES

To Preserve the Bald Eagle.--A bill to preserve from extinction the American, or bald, eagle, emblem of the sovereignty of the United States, was introduced in the House of Representatives by Mr. Randolph, of West Virginia, on February 4 (H.R. 5271).

Conservation Week Proposed.--A resolution calling on the President to set aside the first week in April as American conservation week "and inviting the people of the United States to observe that week in schools, churches, museums, parks, and other suitable places, with ceremonies appropriate to the occasion," was introduced in the Senate by Senator Wagner, of New York, on January 10 (S. Con. Res. no. 3).

3-Shell Limit On Wildfowlers' Guns.--President Roosevelt on February 2 approved an amendment to Federal hunting regulations that places a 3-shell limit on auto-loading and other repeating shotguns. The regulation, which became effective immediately, applies only to automatic-loading or hand-operated repeating shotguns used in hunting ducks, geese, and other migratory game birds. Users of these types of weapon are required to have the magazines stopped with plugs that cannot be removed in the field, or must have the magazines cut down to the required shell capacity. Repairs necessary to bring guns within the provisions of the new regulation, however, will cost little, and arms companies, having in mind the interest of sportsmen now owning such guns, have agreed to cooperate in this conservation measure.

The new amendment, recommended by the Biological Survey, adopted by the Secretary of Agriculture, and approved by the President in accordance with the Migratory Bird Treaty Act, provides that migratory game birds may not be taken "with or by means of any automatic-loading or hand-operated repeating shotgun capable of holding more than 3 shells the magazine of which has not been cut off, or plugged with a one-piece metal or wooden filler incapable of removal through the loading end thereof, so as to reduce the capacity of said gun to not more than 3 shells at one loading."

This regulation, said Secretary Wallace in forwarding the amendment to the President, will be of "incalculable advantage in the preservation of our migratory waterfowl." The Secretary pointed out that the measure "will deprive no one of the privilege of hunting such birds and will meet an exceedingly widespread demand throughout the country." Mr. Darling hailed the amendment as an outstanding conservation act. "Pressure from all quarters," he explained, "has become exceedingly great during the last few years as the annual toll of the hunters, plus the natural causes, have threatened with extermination some of our choicest species among the migratory waterfowl groups and reduced to the danger point nearly all the varieties of ducks and geese popularly sought by the hunters."

As early as 1913, the first protests among sportsmen's groups against multiple-shell guns began to be heard, and the pressure for restriction has progressively increased as the need for wildlife preservation has become more evident. State and National organizations of sportsmen, one after another, have passed resolutions requesting the outlawing of the auto-loading gun, and as the sentiment has grown

against the auto-loader, the hand-operated repeating shotgun has been included in the protest. Canada in six Provinces and the Northwest Territories has legislated a prohibition against them, and similar action has been taken by two States. In the meantime, the majority of gun clubs in the country have imposed upon themselves a prohibition of both auto-loaders and pump guns on their own grounds. Manufacturers have already put on the market modified models of both the auto-loading and the pump shotguns that can accommodate only three shells at a loading. The trend has apparently been toward the double-shot gun or a single-barreled weapon of 3-shell capacity, and the new regulation is thus in harmony with developments among sportsmen.

Address Biological Society.---Speakers on the program of the Biological Society of Washington at its meeting held at the Cosmos Club on February 23 included Clarence Cottam, in charge of the Section of Food Habits, Division of Wildlife Research, and Stanley P. Young, in charge of the Division of Game Management. Mr. Cottam spoke on "The eelgrass disease," explaining as he had on February 5 to the Botanical Society of Washington, the geographic distribution and biological importance of this widespread aquatic grass and the effects on waterfowl of its disappearance in important duck-feeding areas. Talking on "Wolfing with a camera," Mr. Young related experiences in successful nocturnal photography of the black wolf in its habitat in Louisiana, believed to be the first pictures of the kind ever taken. Both talks were illustrated with slides.

Boat Architect Transfers.---Effective February 5, George A. Anthony transferred from this Bureau to the Office of the Quartermaster General, Department of War, to assume the position of supervising marine engineer. He had been with the Survey since November 7, 1933, as associate naval architect, designing boats and supervising their construction under PWA funds.

ADMINISTRATION

Urges Prompt Submission of Forms Naming Beneficiary under Retirement Act.----Under date of November 23, 1934, a Bureau memorandum (Bi-1356) pertaining to designation of beneficiary to receive retirement amount standing to credit of deceased employee was mailed or delivered to all employees whose salaries are subject to retirement deductions. The Civil Service Commission now urges prompt submission of Forms 2806-1 and 2806-2 upon their execution. The following quotations are from statements of the Commission:

"In the interest of good administration and for the protection of persons who have been designated as beneficiaries under the Act of June 22, 1934, it is very important that Form 2806-1, Designation of Beneficiary, and Form 2806-1, Change of Beneficiary, be forwarded to the Civil Service Commission on the day of execution thereof. A delay of EVEN A DAY may defeat the purpose of the Act."

"The test for the validity of a 'Designation of Beneficiary' (Form 2806-1) or a 'change of Beneficiary', as noted on Form 2806-2, will, among other things, be the DATE OF RECEIPT stamped thereon by the Civil Service Commission prior to the death of the annuitant or employee."

Memoranda to Field Offices Issued.---The following memoranda to field offices have been issued in the "Administrative Field Office" series:

No. 22. Endorsement of Government checks. (Feb. 7.)

No. 23. Redeposit of retirement deductions refunded to employees. (Erroneously designated Administrative Memorandum No. 23 instead of Admin. F. O. No. 23.) (Feb. 4.)

No. 24. Emergency funds: When deductions should or should not be made from base salaries of emergency fund employees; hours of employment, and duration of appropriations. (Feb. 19.)

Appointed Messenger.--John Aubrey Coram, formerly employed by the Government Printing Office, was appointed assistant messenger in the Mails and Files Section, effective January 21.

PUBLIC RELATIONS

New Leaflet Series Inaugurated.--The Bureau information leaflet (BS) series, announcement of the plan of which was made in THE SURVEY for November-December, 1934 (p.133), has now been inaugurated, the first two issues appearing in January: BS-1, by Leon Kelso, of Food Habits, on "Winter Food of Ruffed Grouse in New York"; and BS-2, a list of publications and other aids in identifying birds, prepared in the Division of Wildlife Research, under the title "Aids for Bird Students." The latter is a revision of one that was issued under the same title in the "Bi-" series (Bi-787), and is to be used chiefly in answering correspondence. Most publications in the series will set forth the results of research or present general information on wildlife protection and management and will have appropriate mailing-list distribution. The manner of entering names on mailing-lists for receiving such information is set forth in the November-December issue of THE SURVEY, on the page above referred to. Both Washington and field offices will find it desirable to keep this in mind when handling correspondence in which cooperators and others ask that their addresses be kept listed for receiving information on special subjects.

Exhibit at New England Show Features Fur Animals.--Under the supervision of Lisle Morrison, a Bureau exhibit emphasizing the importance of fur-animal conservation was shown at the New England Sportsmen's and Motor Boat Show held in Boston February 2 to 9. Supplemented by an automatic balopticon, maps, and a list of available Bureau publications, three sets with scenic backgrounds included mounted specimens of North American fur animals--one with muskrat, otter, mink, and raccoon specimens; another with wolverene, fisher, and marten; and the third with weasel, skunk, opossum, and red fox. Two display legends read, "Give these valuable fur bearers adequate protection" and "Protect--replace--restore our native fur-bearing animals."

Exhibit Shown at Florida Fair.--Cooperating with the Department's Office of Exhibits, the Biological Survey furnished a shore bird exhibit for the Florida Fair at Tampa, January 29 to February 9. Portraying the attractive features of these birds, the exhibit emphasized the need of continued protection. To suggest that a species of wildlife may be so decimated that it is almost impossible to restore it to its original abundance, the display pointed out that, though a close season exists for many of these birds, their numbers have not increased satisfactorily. In the exhibit a shore foreground, with mounted specimens of birds that once were abundant, blends into a backdrop view of the ocean.

Announce Conservation Day Radio Topics.--The Conservation Day Series presented in the National Farm and Home Hour each Friday at 12:30 p.m., eastern standard time, during March features information on land utilization, soil erosion, the work of the State planning boards, and the development program under way in the Tennessee Valley. Much of the latest data compiled by the National Resources Board will be presented to the general public for the first time in these radio programs. The schedule of talks as announced by the National Broadcasting Company is as follows:

March 1: Charles W. Eliot, executive officer, National Resources Board, "Land Planning Work of the State Planning Boards"; Earl S. Draper, director, Land Planning and Housing, Tennessee Valley Authority, "Land Planning in the Tennessee Valley."

March 8: S. H. McCrory, chief, Bureau of Agricultural Engineering, U. S. Department of Agriculture, "How Mechanical Progress is Affecting Land Use"; W. C. Lowdermilk, vice director, Soil Erosion Service, "How Erosion Damages Land."

March 15: Louis H. Bean, chief, Agricultural-Industrial Relations Section, AAA, "The Industrial Outlook in Relation to Land Use Policy"; S. B. Locke, conservation director, Izaak Walton League, "The Taylor Grazing Act."

March 22: L. R. Edminster, chief, Import and Export Section, AAA, "The Foreign Trade Outlook in Relation to Land Policy"; W. C. Lowdermilk, vice director, Soil Erosion Service, "Land Damage by Wind Erosion."

March 29: Dr. O. E. Baker, U. S. Department of Agriculture Economist, "The Population Outlook in Relation to Land Use."

Official Publications and Releases, copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

The waterfowl flyways of North America, by Frederick C. Lincoln, Biologist, in charge, Section of Distribution and Migration of Birds, Division of Wildlife Research. Circular No. 342, 12 pp., illus., January 1935. Received February 11.

Raising reindeer in Alaska, by Lawrence J. Palmer, Senior Biologist, Division of Wildlife Research. Miscellaneous Publication No. 207, 41 pp., illus., November 1934. Received February 16.

Winter food of the ruffed grouse in New York, by Leon H. Kelso, Junior Biologist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-1, 3 pp., January 1935. Received February 1.

Aids for bird students. Prepared in the Division of Wildlife Research. Mimeographed Leaflet BS-2, 5 pp., January 1935. Received February 8.

The wildlife situation in the United States and its remedies. Address by J. N. Darling, Chief, delivered at the Twenty-first American Game Conference, in New York City, on January 22, 1935, and on the same date briefed extemporaneously in a broadcast during the National Farm and Home Hour.

Director of Federal fur-animal station resigns. Press statement 1383-35. Released January 23.

Facts for fur farmers: Fur, a neglected natural resource; Germans establish fur sales agreement. Press statement 1435-35. Released for March numbers of fur magazines. Jackson Hole elk face serious food shortage. Press statement 1502-35. Released February 2.

Redington named supervisor of Shoshone National Forest. Press statement 1530-35 (Forest Service). Released February 6.

3-shell limit placed on wildfowlers' guns; waterfowl conservation measure approved by President Roosevelt. Press statement 1546-35. Released February 8.

Alaska brown bears to be protected. Press statement 1567-35 (Forest Service, Biological Survey, and Alaska Game Commission). Released February 12.

Wild ducks in migration follow ancestral routes. Press statement 1600-35. Released February 19.

Breeding wild ducks. Clip Sheet No. 865. Released January 27.

Wildlife diseases. Clip Sheet No. 866. Released February 3.

Rabbit hair 1,500 years old. Clip Sheet No. 867. Released February 10.

Forest wildlife. Clip Sheet No. 868. Released February 17.

Few birds misbehave. Clip Sheet No. 868. Released February 17.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Cheesman, Wm. H. Killcohook Migratory Bird Refuge. Sci. Mo. 39: 573-574, illus. Dec. 1934.

Cottam, Clarence, and Nelson, A. L. Christmas bird census at Port Tobacco, Charles County, Maryland. Bird-Lore 37 : 50-51. Jan./Feb. 1935.

Couch, L. K. Chronological data on elk introduction into Oregon and Washington. Murrelet 16 : 3-6. Jan. 1935.

Darling, J. N. The wildlife situation in the United States and its remedies. Amer. Field 123 : 131-132. Feb. 9, 1935.

Gabrielson, I. N. Flower portraits of the western mountains. Natl. Waltonian 2(7) : 4-5, 10-11, illus. Jan. 1935.

Jewett, S. G. An albino mountain beaver. Murrelet 16 : 18. Jan. 1935.

----- The prairie falcon at Portland, Oregon. Murrelet 16 : 16. Jan. 1935.

----- A red phalarope disaster. Murrelet 16 : 15-16. Jan. 1935.

Kalmbach, E. R., Sperry, C. C., Williams, C. S., and May, F. H. Christmas bird census at Marston Lake, Jefferson County, Colorado. Bird-Lore 37 : 79. Jan./Feb. 1935.

WILDLIFE RESEARCH

Attends Meeting of American Foresters.--Dr. Bell, a member of the Society of American Foresters, represented the Bureau at the meeting of that Society held at Washington, D. C., January 28 to 30. He reports that much interest was displayed in forestry and wildlife problems, and that a number of important papers were presented on game and game-management practices. Among the latter was a report by Herbert L. Stoddard, formerly of the Biological Survey but now Director of the Cooperative Quail Study Association, at Thomasville, Ga., on the "Use of Controlled Fire in Southeastern Upland Game Management," in which he discussed improving conditions for game, particularly quail, in the southern forested areas. His conclusions corresponded closely with those presented by a number of the foresters and timber producers relative to the use of fire in the southern longleaf-pine regions.

Continues Lecture Trip.--Dr. H. C. Oberholser is continuing his program of educational lectures on waterfowl conditions and policies of the Bureau relative to wildlife conservation and management. He has visited points in Ohio, Michigan, Illinois, Indiana, Wisconsin, Minnesota, and North Dakota, and plans to include Iowa, Missouri, Nebraska, Tennessee, Arkansas, Louisiana, and Texas in his itinerary.

Continues Waterfowl Studies in Mexico.--E. A. Goldman and L. J. Goldman are continuing their study of waterfowl conditions in important waterfowl-concentration areas of southern Mexico. At the request of the State Department the former has also consulted with Federal officials of Mexico relative to details of proposed protection of the birds that migrate between the two countries.

Inspects Proposed Refuge Sites in New Mexico.--Dr. Walter P. Taylor recently visited points in New Mexico to confer with State officials and to inspect lands suitable for wildlife-refuge purposes. He reports an active interest in wildlife restoration among officials and people of that State.

Plans for Wildlife Management on Superior National Forest.--C. M. Aldous, who is developing plans for wildlife management on the Superior National Forest, Minn., has been conferring with Forest Service officials at various points in Minnesota and Wisconsin during the period when field work has been largely impracticable on account of the heavy snowfall. He is also engaged on a study of methods of propagating various plants for improving food and cover in the Lakes States and in North and South Dakota.

Studies Elk on Olympic Peninsula.--Arrangements have been made for O. J. Murie to continue, in cooperation with the Forest Service, the National Park Service, and State game officials, his study begun last spring of conditions affecting the Roosevelt elk on the Olympic Peninsula, in Washington. The main object of the present investigation is to study the available food supply in winter and other conditions at that season. This work is being done in connection with the plan for developing a Nation-wide program of wildlife management based on studies of the habits of the animals and their relationship to their environment.

New Publication Issued on Alaska Reindeer.--The success of reindeer production in providing an industry for Alaskans is described in the recently issued Miscellaneous Publication No. 207, "Raising Reindeer in Alaska," by Lawrence J. Palmer, in charge of the Bureau's Reindeer Experiment Station, at College, Alaska. Introduced into Alaska more than 40 years ago to replenish the Eskimo larder in view of threatened game depletion, the reindeer have now come to provide the Alaskans meat and hides and by-products. A recent development is the shipping of trained reindeer to the United States for Christmas displays.

The Alaskans first learned from Lapland herders how to care for the newly imported reindeer and how to utilize them for food and clothing. As time passed, however, the methods and practices adopted from the Laplanders began to show serious defects. The reindeer were deteriorating, and the ranges were getting overstocked. These conditions called for a scientific study of the Territory's grazing resources and the working out of improved methods of herd and range management. Congress authorized such a study, and in 1920 the Biological Survey undertook the work. The investigations are being continued in cooperation with the Alaska College of Agriculture and School of Mines. In the new publication Mr. Palmer presents the latest developments in these studies and furnishes directions for carrying out the improved practices. He also discusses the development of the industry, the characteristics of reindeer, and the character of the reindeer range in Alaska.

The future development of the reindeer industry, it is pointed out, should not threaten the caribou, a natural resource of the Territory. Along the coasts of Bering

Sea and the Arctic Ocean, the presence of reindeer has meant the disappearance of the native wild caribou, for the two animals cannot occupy a range together and the section was ideally suited for the much needed new industry. Eastern parts of Alaska, however, are less suitable for handling reindeer effectively, and the thriving herds of caribou there constitute a natural resource of great interest and value to the general public, as well as to the prospector and traveler. In view of the great intrinsic value of both reindeer and caribou, and the fact that the two cannot exist together, it will be well, says the publication, to have certain areas definitely recognized as caribou range and to exclude the reindeer; and for future uses and enjoyment the pure caribou strain should be preserved in the major areas now occupied by them.

Distribution and Migration of Birds

Severe Weather Conditions Hinder Waterfowl Surveys.--It is expected that much valuable information will be obtained from the waterfowl surveys made from January 21 to 26 by the district and game-management agents of the Division of Game Management. The observers, however, worked under difficulties, owing to the heavy snowfall and the sub-zero temperatures that prevailed throughout most of the country.

Waterfowl Banding Continues To Increase.--The banding of waterfowl is still showing an increase, the number of individual birds recorded banded so far this fiscal year being 23,195. Among the birds banded were 8,837 mallards, 7,438 pintails, 2,668 black ducks, 1,121 lesser scaups, and 209 redheads. Reports of banded ducks shot during the past hunting season are still being received, the total number now being more than 5,000.

European Widgeon Shot in Virginia.--A letter received during the past hunting season reported the recovery, on November 20, 1934, in Princess Anne County, Va., of a duck bearing a band marked "Mus. Nat. 179, Reykjavik, Iceland." Inquiry disclosed that this was a European widgeon (Mareca penelope), banded at Sandur, Adaldalur, North Iceland, on July 19, 1934. This information was furnished by Magnus Bjournsson, who sent the Bureau a set of the bands that are being used at his station in Iceland under the direction of the Museum of Natural History at Reykjavik.

Interesting Banding Records Received.--Among the interesting reports of the recovery of banded birds are the following: A mourning dove banded June 21, 1934, at Niles, Mich., was killed November 28, 1934, at Plant City, Fla; burrowing owl banded July 16, 1933, at Jamestown, N. Dak., was recovered December 26, 1934, near Moore, Tex.; a great blue heron banded June 17, 1932, at Bird Island, Clear Lake Refuge, Calif., was found dead January 1, 1935, near Culiacan, Sinaloa, Mex.; a herring gull banded August 12, 1934, at Kents Island, Grand Manan, New Brunswick, was shot November 7, 1934, at Cayman Brac, British West Indies; a yellow-bellied sapsucker banded June 28, 1934, at Neebish, Mich., was killed December 14, 1934, near Rome, Ga.; a flicker banded June 13, 1934, at East Westmoreland, N. H., was taken in November, 1934, at Trenton, Fla.; a redhead banded April 28, 1933, at Dawson, N. Dak., was shot December 1, 1934, at Grasonville, Md.; another redhead banded at the same place April 25, 1934, was shot October 20, 1934, at Chester, Calif.; a cedar waxwing banded October 1, 1932, at North Eastham, Cape Cod, Mass., was recovered November 1, 1934, at Woodstock, Ga.; a bluebird banded July 5, 1932, at Gates Mills, Ohio, was taken December 25, 1934, at Tuskegee, Ala. A number of brown pelicans, banded on Pelican Island, Mosquito Lagoon, Fla., in November 1934, have been reported during the past month from several localities in Cuba.

Addresses Brooklyn Meeting.--On February 8, 1935, F. C. Lincoln addressed the Brooklyn (N. Y.) Institute of Arts and Sciences on the "Romance of the Numbered Bands".

Circular Discusses Waterfowl Flyways.--When the ducks now wintering in the United States wing their way to breeding grounds in the North, they will follow routes established by their ancestors, and when the birds return next fall each group will come again to the same region where its ancestors found wintering grounds. This is the central thought of the recently issued circular 342. "The Waterfowl Flyways of North America," by Frederick C. Lincoln. The birds, Mr. Lincoln explains, have naturally and over the ages developed their many routes of travel into four main systems, shown in maps included in the circular. From north to south the migration routes came together in four definite geographic regions, called flyways and designated the Atlantic, the Mississippi, the Central, and the Pacific. Using bird-banding and other data, the author shows that the waterfowl population in each of the four major flyways is maintained almost entirely by the birds using that region. If the birds should be exterminated in any one of our four major flyways, it would at best be a long time, he predicts, before that region could be repopulated, even though birds of the species affected should over other flyways continue to return to their great breeding grounds of the North. Today, says the author, we have indisputable evidence that the waterfowl of North America have seriously decreased in numbers throughout the continent and, consequently, that we must take special precautions to prevent the extermination of these valuable species. In the light, however, of what we have learned about the birds' attachment for their ancestral flyways, Mr. Lincoln declares we must go far enough to prevent the extermination of the species in any of the four major flyways.

Food Habits

Takes Wildlife Census on Pillsbury Forest.--J. Paul Miller spent January 24 and 25 in New Haven, Conn., conferring with staff members of the Northeastern Forest Experiment Station relative to forest-game problems. On January 26 he attended the New England Game Conference at Boston, Mass., and conferred with various State officials on the same subject. After returning to his official headquarters, at Amherst, on the 27th, he proceeded to the Pillsbury Forest Reservation, N. H., to make, with the assistance of CCC members, a detailed wildlife census of the area, which covers approximately 3,000 acres.

Examine Proposed Waterfowl Refuge Sites.---Neil Hotchkiss left Washington on January 28 to make a detailed study of possible waterfowl-refuge sites in the South Atlantic States, from North Carolina to Florida, and to investigate the food resources and other conditions affecting waterfowl. A. C. Martin left on February 5 for Ridgeway, Mo., where he examined a number of proposed waterfowl refuges, after which he proceeded to California and other western and Rocky Mountain States to conduct similar investigations.

Conducts Lead-Poisoning Experiments.--E. R. Kalmbach, of the Food Habits Laboratory, at Denver, Colo., is conducting lead-poisoning experiments to determine whether the toxic effects of lead shot are correlated with the presence or absence of grit in the stomach and also the effect on the birds of arsenic used in the manufacture of chilled shot.

Eider Duck Acquitted.--W. F. Kubichek returned to Washington on January 29, after spending nearly 4 weeks in Massachusetts, studying the relation of waterfowl and gulls to shellfish. Many complaints had been received that these birds were inflicting damage on the shellfish, and the State had issued permits to shoot scoters and eider ducks in certain water areas. Field observations and careful laboratory studies demonstrated conclusively that the waterfowl damage was restricted to a few small scallop seed beds, and even there the depredations were committed by only one species--the white-winged scoter. The eider duck had been vigorously condemned, but examination of the stomachs of 23 birds collected while feeding on or near the scallop beds showed that not one contained even a trace of this shellfish. As a result of the investigation the State promptly withdrew its permits and is now affording full protection to the birds.

Investigates Reported Depredations by Black Ducks on Trout.--After concluding his waterfowl-shellfish study in Massachusetts, Mr. Kubichek left Boston, on January 27, for a hatchery at Eastport, Long Island, N. Y., to investigate reported depredations by black ducks on fingerling trout. Mr. Kubichek found that owing to a heavy freeze and the cessation of baiting after the hunting season closed, the ducks, which had undoubtedly remained in the area because of the baiting, had found little or no food available and were flocking to a fish hatchery to feed on the young fingerling trout. Mr. Kubichek made recommendations for protection of the trout.

Completes Waterfowl-Gunning Studies.--Waterfowl conditions and gunning practices at some of the principal waterfowl concentration points in the United States were investigated during the past hunting season by members of the Bureau who had conducted baiting studies in the same areas during the preceding hunting season. These studies have now been completed and reports are being compiled. Members of this section who participated in the work were C. C. Sperry, of Denver, Colo.; Theo. H. Scheffer, of Puyallap, Wash.; Johnson A. Neff, of Sacramento, Calif.; and F. M. Uhler, Neil Hotchkiss, A. C. Martin, and Clarence Cottam, of the Washington (D.C.) office. All report a decline in the waterfowl population in the areas covered.

Stomachs of Rare and Extinct Birds Yet to be Examined.--In the course of reorganizing the collection of bird stomachs, as yet unexamined, some rare and interesting material was noted. Of unusual significance is a series of 11 passenger-pigeon stomachs, 8 of which were from birds collected by S. A. Forbes in various sections of Illinois between 1876 and 1881. The remaining three were from birds taken at Washington, D. C.; Portland, Conn.; and Port Deposit, Md. The stomach of the passenger-pigeon collected at Port Deposit, Md., by J. Ford Sempers, bears the latest date, December 16, 1893. Other interesting material includes the stomach of a Carolina parakeet collected by Walter Hoxie on October 24, 1888, at Fort Drum, Fla., and two stomachs of the thick-billed parrot, both collected by F. H. Hands on March 27, 1918, in the Chiricahua Mountains, Ariz.

Visit Washington Office.--During January H. D. Ruhl and G. Saunders, of the Michigan Department of Conservation; Dr. Miles D. Pirnie, director of the Kellogg Bird Sanctuary; and Dr. Lawrence E. Hicks, of the Soil Erosion Service, conferred with Food-Habits investigators in Washington and observed methods of stomach examinations. While in Washington Mr. Ruhl made arrangements for the examination of a number of stomachs of predators from Michigan. H. L. Stoddard and

E. V. Komarek, of the Cooperative Quail Study Association, Thomasville, Ga., and Ernest G. Holt, in charge of game management for the Soil Erosion Service, also visited the office and conferred on wildlife problems.

Fur Resources

Confers on Fur Problems.--Frank G. Ashbrook, on February 5, was one of 300 who attended a dinner given by the Fur Club, of New York City, in honor of a fur dealer from Russia, a country that supplies many of the furs used in the United States. On the following day Mr. Ashbrook spoke on fur farming to the Animal Husbandry Club of the Massachusetts Agricultural College, at Amherst. Following a brief visit to the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., he planned to meet Chas. E. Kellogg in New York City, where several members of the fur trade are aiding the Bureau in appraising the fox pelts taken at the fur-animal station this year. Particular emphasis is being given to the causes of "tinge" and to chewing and rubbing in silver-fox pelts.

New Experiments Begun at Fur Animal Station.--Walter G. McBlain, acting director of the Fur Animal Experiment Station, reports that a new experiment was started during the early part of January to test the value of a mixture of 5 parts of beef meal and 1 part of liver meal as a substitute for raw meat in the feeding of foxes during the breeding, whelping, and lactation periods. Though this ration has been fed during summer to growing pups and mature animals, it has never been tested for the critical period of lactation. If such a feed proves satisfactory, it will result in a material saving to fox farmers. Mr. McBlain also reports that the selections and matings have been made for an experiment to determine the genetic basis of silvering and to evolve methods of breeding that will insure control of gradations of silvering. Samples of fur have been taken from various parts of each animal and filed for future study.

Furs in Storage Examined.--Dressed mink, Hudson seal (seal-dyed muskrat), and rabbit skins that have been held in cold-storage plants in Washington for approximately 2 years, in an experiment to determine the effect on them of fumigation and other storage practices, were recently withdrawn in order to study the changes, if any, that have taken place.

Newsmen Visit Rabbit Station.--George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif., reports that during January the editors of the Pacific Rural Press, from San Francisco, and the editor of the Farm and Home Garden Section of the Los Angeles Times called at the station and spent considerable time looking over the equipment and inspecting the experimental work in progress. During the month Mr. Templeton also gave talks at rabbit meetings in Temple City and San Diego and visited several rabbitries.

Disease Control

To Give a Series of Lectures on Wildlife Diseases.--At the request of the dean of the Veterinary School, of the University of Pennsylvania, at Philadelphia, Dr. J. E. Shillinger, on March 1 and 2, is to deliver several lectures before the

students of that institution on wildlife diseases and the activities of the Bureau relating to that field of research. While in Philadelphia, he is also scheduled to speak before the Keystone Veterinary Medical Society.

Inspect New Quail Brooder House.—On January 27 Dr. Shillinger and Dr. L. C. Morley in company with Dr. E. C. O'Roke, of the University of Michigan, and H. L. Stoddard and Edwin V. Komarek, of Thomasville, Ga., inspected the recently completed brooder house designed for the wholesale propagation of bobwhite quail, located on the Maryland State Game Farm, at Gwynnbrook, Md. They report that this new equipment is built along lines conducive to the most efficient handling of quail. With its modern heating plant and the unit heaters controlled by automatic thermostats, it is possible to maintain a uniform temperature. If this type of construction proves practicable, it will mark a decided advance in controlled quail production.

Studies Wildlife Losses in Southeastern United States.—From February 10 to 16 Dr. Morley was in the Southeastern States examining various species of wildlife to determine the cause of reported losses. Among other studies he made a special investigation of the extent of pullorum disease in bobwhite quail. He also made arrangements for procuring a number of rodents in that part of the country said to be affected with some unknown paralytic disease. While in the South, Dr. Morley made his headquarters with H. L. Stoddard at the Sherwood Plantation, Thomasville, Ga.

MIGRATORY WATERFOWL

To Inspect Proposed Waterfowl Refuge Sites.—Mr. Salyer left Washington on February 21 to inspect personally the refuge sites in Louisiana and Texas that have been tentatively selected by John Sutherlin, of this Division, and by Messrs. Martin, Uhler, and Hotchkiss, of the Division of Wildlife Research. Some of the most important wintering grounds for waterfowl in the entire United States are located in these two States and practically all the most desirable of these areas are available for acquisition by the Bureau.

Work on the Migratory-Waterfowl Program Progresses Rapidly.—For concrete evidence of the progress that has been made during the past month on the migratory-waterfowl program, one has only to visit the offices of the Division of Administration and note the work now being done there in preparing the invitations to bid on the engineering and construction work planned. The field forces have been bending every effort to round out and submit the necessary engineering data to Washington: Mr. Emery's force of architectural draftsmen has been working at top speed so that the working-drawings for the headquarters buildings would be completed; the draftsmen of the Bureau of Agricultural Engineering have been working diligently on the working-drawings for the water-impoundment and control structures; and the specifications for most of the major projects have now been written. As the result of the speedy handling of the work by all the cooperating divisions, the invitations to bid on the engineering work at the Des Lacs, N. Dak.; Mud Lake, Minn.; and LaCreek, S. Dak., migratory-waterfowl-refuge projects, and on the headquarters contracts for the Cape Romain, S. C., Mud Lake, Minn.; and Bear River, Utah, Migratory Bird Refuges, have already been advertised and are scheduled to be opened shortly. The specifications for the Lower Souris River, N. Dak., and the Medicine Lake, Mont., engineering contracts are now being printed and the invitations to bid will be advertised as soon

as possible. Next week will be advertised the invitations to bid on contracts for the construction of the headquarters buildings at the following migratory-waterfowl-refuge projects: Lostwood Lakes, Upper and Lower Souris Rivers, Arrowwood Lakes, and Des Lacs, all in North Dakota; and Medicine Lake, Mont.; LaCreek and Waubay, S. Dak.; White River, Ark.; Seney Marsh, Mich.; Lake Malheur, Oreg.; and the Chautauqua Bottoms, Ill.

Surveying Proposed Waterfowl Refuges.--Charles W. Okey, senior drainage engineer, is directing three survey parties on proposed waterfowl refuges at Isom Lake, Tenn., Mingo Swamp, Mo., and the Chautauqua Bottoms, Ill. He reports that excellent progress is being made, and it is hoped that this work will be completed in the near future.

To Make Reconnaissance Survey of Mississippi Flyway.--John T. Emlen, Jr., who has heretofore been working on Wisconsin projects, has been assigned to make an extensive reconnaissance survey down the entire Mississippi Valley flyway and in the Gulf States. It is particularly desirable that a resting area of exceptional merit be located somewhere in the stretch between Sioux City, Iowa, and St. Louis, Mo.

Completes Examination of Waterfowl Refuge Sites.--Walter Bennett has just completed a thorough examination of the migratory waterfowl-refuge possibilities in New Mexico and Arizona and reports some excellent prospects well worthy of development under this program.

Confer With Washington Officials.--Burnie Maurek, project coordinator for North Dakota, and John N. Ball, project coordinator for Nebraska and South Dakota, were in Washington several days last month conferring with members of the Washington staff, S. H. McCrory, chief of the Bureau of Agricultural Engineering, and with FERA officials. For the guidance of the field forces, Mr. Salyer outlined the future field policy of the migratory waterfowl program. It is hoped that these conferences will be of material benefit to the program in ironing out difficulties that inevitably arise.

To Plan Headquarters Set-up.--Amos B. Emery, architect in charge of the construction of refuge headquarters, left Washington by airplane, on February 8, to visit all the Bureau's new refuges. This personal inspection will enable him to determine the type of headquarter structures to meet best the needs of each particular refuge, and to select the most strategic building sites.

Appointed Senior Stenographer.--Miss N. Beth Marples was appointed senior stenographer in this Division, effective February 16. Miss Marples was detailed to this Bureau on December 24, 1934, from the Agricultural Adjustment Administration, and her appointment has now been made permanent.

LAND ACQUISITION

FERA Projects Approved.--The following proposed migratory-waterfowl-refuge projects have been approved by the Federal Emergency Relief Administration: An addition to the Niobrara Game Preserve, Nebr.; and the Mud Lake, Minn., and Upper

Souris River Migratory Waterfowl Refuges, N. Dak., and the proposed Sand Lake project in South Dakota has been submitted to the Administration for approval.

Movements of Personnel.--William Ackerknecht, acquisition aide, formerly working in the south central States, with headquarters at St. Louis, Mo., has been detailed to Washington, D.C., L. E. Guernsey, chief of party engineering, and J. W. Howard, assistant to technician, formerly on the Big Lake project, Manila, Ark., have reported to Washington D. C., for a short period. John D. Griffiths, engineering aide, has resigned his position with the Bureau and has accepted an appointment with the War Department.

GAME MANAGEMENT

Confers With Western Cooperators.--Mr. Young attended the annual meeting of the National Wool Growers Association at Phoenix, Ariz., January 29 to 31, and gave a talk on the control of injurious mammals. During this meeting three resolutions were unanimously adopted commending the cooperative work of the Bureau. While at Phoenix, Mr. Young conferred with District Agent Ben E. Foster, and with the State game warden and other cooperators of the Bureau. He then proceeded to Albuquerque, N. Mex., for a conference with the president and a member of the executive board of the New Mexico Game Protective Association. He also discussed the Bureau's cooperative work with J. C. Gatlin, District Agent, for New Mexico, and with Regional Director D. A. Gilchrist. En route back to Washington Mr. Young stopped at Chicago, Ill., where on January 5 he spoke on the Bureau's cooperative mammal-control work before the Kennicott Club, at the Chicago Academy of Sciences, and on January 6 before the Inter-Fraternity Club of Chicago, a club of college men representing all the national fraternities in that city. While in Chicago Mr. Young also conferred with Tappan Gregory, honorary curator of mammals of the Chicago Academy of Sciences, on the proposed publication of an article on the recent expedition into Louisiana, where pictures were taken of wolves in the wild. It is expected that this will soon be issued.

Outline Bear-Management Plan for Admiralty Island.--Plans for the management and perpetuation of the famous brown bears of Admiralty Island, Alaska, worked up cooperatively by the Forest Service, the Biological Survey, and the Alaska Game Commission, and seeking primarily to coordinate the management of the bear population with a well-rounded use and enjoyment of other commercial, recreational, and scenic resources of the island, are outlined in a report prepared by B. F. Heintzleman, formerly assistant regional forester in Alaska, and H. W. Terhune, executive officer of the Alaska Game Commission and representative of the Biological Survey in the Territory. The report has been issued as Miscellaneous Publication No. 195, "A Plan for the Management of Brown Bear in Relation to Other Resources on Admiralty Island, Alaska".

Admiralty Island, with a total area of 1,065,000 acres, is a part of the Tongass National Forest, one of the two great national forests of Alaska and the largest in the national-forest system. The Alaska brown bear, for which the island is famous, is one of the largest bears of the world. Specimens weighing 1,600 pounds have been noted. In North American Fauna No. 41, five species of large bears were differentiated on Admiralty Island by Dr. C. Hart Merriam, first chief of the Biological Survey and a noted authority on these animals. The animals spend

about five months of the year in hibernation, during which period the cubs are born. They spend most of the summer season in the higher country of the interior, except for frequent excursions to the streams during the salmon spawning season. The estimated bear population of Admiralty Island in 1932 was 900. In addition to the bears, Admiralty Island has an abundance of other wildlife resources. The small Sitka deer is numerous on all parts of the island, and local fur bearers include the beaver, mink, land otter, muskrat, and weasel. Upland game birds are ptarmigan and grouse. Migratory waterfowl are abundant in fall. Most of the streams and lakes afford excellent trout fishing.

Refuge Administration

Visits Bird Refuges.--On January 6, W. E. Crouch left Washington to inspect the following refuges: Blackwater Migratory Bird Refuge, Md.; Swanquarter Migratory Bird Refuge, N. C.; Blackbeard Island Migratory Bird Refuge, Ga.; Savannah River and Cape Romain Migratory Bird Refuges, S. C.; and the St. Marks Migratory Bird Refuge, Fla. He also visited the Okefenokee Swamp, Ga. During this trip Mr. Crouch conferred with State game officials in Virginia, North Carolina, South Carolina, Georgia, and Florida. He returned to the Washington office on January 28.

Elk Face Serious Food Shortage.--Since the feeding of elk began at the Elk Refuge, Wyo., on January 1, the animals have crowded onto the feeding grounds and during January their numbers increased from 5,500 to about 9,500. Approximately 36 tons of hay and 6 tons of cottonseed cake a day are being fed to them by the employees of the refuge and of the State Game Department. The State Game Department of Wyoming is also feeding about 1,500 elk on two feeding grounds south of the town of Jackson. The supply of hay and other feed on hand is rapidly diminishing, and is totally inadequate to meet the needs of the elk until the new grass comes. The prospects are that it will be necessary to continue feeding the elk until late in April, so the Bureau is confronted with the problem of providing additional food supplies. The State Game Department recently purchased 150 tons of hay, but this amount is far short of the quantity necessary for this emergency. The State's funds for such purpose are exhausted, and the Bureau is endeavoring to arrange for emergency purchases of hay in order to prevent the starvation of hundreds of the herd which constitutes one of the few remaining aggregations of this species in the country.

Elk Takes High Jump.--Geno A. Amundson, in charge of the Niobrara Game Preserve, Nebr., reports an incident that is of interest in showing how high an elk can jump. It is not unusual for elk when running wild on open ranges to make high jumps, but the animals in fenced enclosures usually do not do so. Mr. Amundson relates that while elk at the preserve were being separated with a view to cutting out some cows for shipment, two bulls were placed in separate pens. Later in the day it was found that one of them had jumped the plank fence 7 feet 6 inches high surrounding the pens and had joined the herd in a holding pen. He had knocked a splinter off the fence, but joined the herd apparently in good shape.

Detailed to Washington Office.--Elton C. Hotchkiss, of the Upper Mississippi River Wildlife and Fish Refuge staff, has been detailed to the Washington (D.C.) Office for a couple of months.

Decrease in Hunters at Bear River Refuge.--A report received from George E. Mushbach, in charge of the Bear River Migratory Bird Refuge, Utah, states that during the 1934 season 2,298 hunters were registered for hunting on that part of the refuge opened to shooting, and that 7,559 ducks and geese were killed. This is a decrease of 40 percent in the number of hunters as compared with 1933, when 3,839 were registered and 12,361 birds killed.

Surplus Big-Game Animals Removed.--The disposal of the surplus big-game animals at the preserves administered by the Bureau is nearly completed, and 289 buffalo, 141 elk, 51 mule deer, and 1 white-tailed deer have been removed. Of these, 223 buffalo, 90 elk, and 13 mule deer were transferred to Indian agencies, the larger number of the animals being killed for meat by needy Indians. Some of the buffalo, however, were retained by the agencies for breeding, and as many as possible of the surplus animals are disposed of for this purpose though it is necessary that others be sold for meat.

Visit Cape Romain.--William P. Wharton, secretary of the National Association of Audubon Societies, and Alexander Sprunt, a naturalist of Charleston, S. C., visited the Cape Romain Migratory Bird Refuge, S. C., on January 30 and were shown over the area by Harold F. West, in charge of the refuge. Mr. West reports that they saw more mergansers on this trip than had ever before been recorded for the area. Other birds observed were a few Canada geese and ducks, including a pair of old squaw ducks in the channel near headquarters, 1 brant, and 3 long-billed curlews, the last-named species being a rare sight in this locality.

Feeding Birds at the Preserves.--Wesley D. Parker, in charge of Sullys Hill Game Preserve, N. Dak., is feeding the birds on that area as well as those outside the preserve fence where there are many upland-game birds. Mr. Parker states that the partridges planted in that region are said to be becoming numerous and seem to thrive in the locality. Birds are also being fed at the Niobrara Game Preserve, Nebr., at Wind Cave Game Preserve, S. Dak., and at other refuges.

Waterfowl Taken on Lake Mattamuskeet Shooting Areas.--Regional Director James Silver, in his statement concerning the waterfowl taken on the public-shooting areas of Lake Mattamuskeet Wildlife Refuge, N. C., during the 1934-35 season, reports a total kill of 1,850 Canada geese and 626 ducks, including pintails, black ducks, mallards, baldpates, shovelers, teal, scaups, and ringnecks. Two units, one on the east side of the 50,000-acre refuge and one on the west, comprising 20 percent of the area had been set aside as public-shooting grounds under cooperative administration with the game authorities of North Carolina.

Speaks on Upper Mississippi Refuge Work.--During the month Ray C. Steele, superintendent of the Upper Mississippi River Wildlife and Fish Refuge, spoke before the Shrine Club, at La Crosse, Wis., on the general conservation program being carried out on the refuge. He also spoke on "Winter bird feeding" before the 4-H Club, of Stockton, Minn., a club of boys and girls that is carrying on a commendable bird-feeding campaign.

Upland-Game Birds Fed on Upper Mississippi Refuge.--Because of heavy snow-falls since November 30, amounting to approximately 50 inches, in the vicinity of the Upper Mississippi River Refuge, large numbers of upland-game birds, including ring-necked pheasants, quail, and sharp-tailed and pinnated grouse, have sought protection in the heavy marsh cover on the refuge. Food patches have been carrying a capacity load of these birds, and a large number of feeding stations are being maintained by the refuge personnel. Extremely cold weather has prevailed during the past month, and had it not been for the maintenance of these feeding stations, heavy losses among the upland-game birds doubtless would have occurred. A mixture of corn, wheat, barley, oats, and grit is being used. With the freezing over of the river, lakes, and sloughs, except small open stretches on the river, all migratory wild fowl other than a few mergansers moved out of the refuge.

Appointed Junior Stenographer.--Miss Margaret M. Mallaney, of Minneapolis, Minn., has been appointed junior stenographer at the Upper Mississippi River Refuge.

Law Enforcement

Many Game-Law Violators Apprehended.--The so-called "Flying Squadrons," mobile forces of United States deputy game-management agents drawn from the various districts and detailed to operate in areas where violations of the Migratory Bird Treaty Act have been unusually flagrant, are still active and continue to pick up violators in many areas where migratory waterfowl are abundant. Recent activities have been directed against close-season shooters, trappers of ducks, and persons engaged in selling waterfowl. As a result of field operations during the present fiscal year approximately 400 violators have been apprehended. Particular attention was given to the Missouri and Illinois River sections, the San Joaquin and Sacramento River Valleys, Currituck Sound in North Carolina, the Susquehanna Flats in Maryland, Potomac River, Long Island, Delaware River, Catahoula and other important lakes in Louisiana, the Lake Erie Marshes, the White River in Arkansas, and important areas in Maine, Minnesota, Missouri, Montana, New Jersey, Oklahoma, Oregon, Texas, Washington, Wyoming, and other States.

Game-Law Violation Cases Terminated.--Intensive drives to break up or check commercial activities in migratory waterfowl were conducted in Illinois and California, and 44 cases in Illinois will be prosecuted in Federal courts. Of the cases obtained in California involving the sale of waterfowl, several were taken into State court, with the following results: Five defendants were fined \$120 each, five \$100 each, one \$75, three \$50 each, and one \$25. One poultry dealer of Sacramento who had 293 dressed wild ducks and 11 geese in possession during the close season was fined \$500. Among the outstanding cases successfully prosecuted in Federal court were the following: In the Eastern District of Louisiana one defendant charged with killing geese in excess of the bag limit was fined \$500; another charged with killing one duck and two coots in close season was given a 10-day jail sentence; four others charged with killing waterfowl in close season and one charged with killing herons and egrets, received jail sentences ranging from 30 to 60 days. In the Western District 18 cases, involving the killing of ducks from motorboats, hunting ducks before sunrise and after sunset, and killing and possessing ducks in close season, were disposed of on January 28 and 29. Seven first

offenders were fined \$10 each; 3 chronic violators, \$50 each; and 6 market shooters were given 60 days each in jail. For hunting after sunset one defendant was fined \$50, and another (a known market gunner) was sentenced to 4 months in jail. Other recent Federal convictions involved 6 game-law violators in Arkansas, whose fines ranged from \$5 to \$15; 19 in Georgia, most of whom were fined \$25 each; 2 in California, fined \$5 and \$50; 2 in Illinois, fined \$10 each; 6 in Michigan, given 10 days each in jail, and 1, 90 days in jail; 1 in Virginia, for attempting to trap ducks, fined \$10, and 1 in Wisconsin for hunting ducks after sunset, fined \$50.

Duck-Stamp Violator Fined.---The first case concluded under the Migratory Bird Hunting Stamp Act was settled in Federal court at New Orleans, on January 7, 1935, by a plea of guilty and a fine of \$10. The defendant was apprehended while hunting ducks with a license and stamp issued to another individual.

Fur Shipments Investigated.---Several hundred beaver skins in shipments from Wyoming were recently inspected at New York City to determine whether they bore illegal tags. Other investigations were also made in connection with the alleged unlawful shipment of skins from Michigan.

Ice-bound on Island in Chesapeake.---After being marooned on Holland Island, in Chesapeake Bay, by storm and frozen waters for ten days, Deputy Game Management Agent Cornelius W. Wallace was returned to the mainland on February 1 by a Coast Guard cutter cooperating with officials of the Bureau. Mr. Wallace, who was engaged in enforcement work and in making an estimate of the waterfowl populations of his area, had made temporary headquarters in a club house on Holland Island, when a northeast rain storm that had prevailed for two days turned into sleet and snow, with a subzero temperature. Carrying food and supplies sufficient to last him two weeks, he was able to subsist and also to aid a trapper who had been forced to find shelter from the storm on the island. After trying in vain to break through the ice with Wallace's motorboat on January 26, the two men resigned themselves to waiting for a thaw or for cold severe enough to freeze the main channel and permit escape across the ice. On January 30 supplies were dropped to them from an airplane, and the men were in good condition when rescued.

Seattle Office of Alaska Game Commission Closed.---The temporary office of the Alaska Game Commission, at 31 Federal Office Building, Seattle, Wash., has been discontinued. Capt. John O. Sellevold, who was in charge of that office, has been detailed to Juneau, Alaska. H. W. Terhune, Executive Officer of the Alaska Game Commission, will be located for the next two months in the Washington, D. C., office of the Bureau to transact business for the Commission.

"Grizzly Bear" Replaces "Sea Otter".---Second largest of the six new vessels constructed with PWA funds for the use of the Alaska Game Commission, the Grizzly Bear left Seattle on January 14 for her maiden voyage to Alaska. This vessel, heavily constructed to withstand the severe weather conditions of the Alaska coastal waters, is 58 feet long, with a 14-foot beam and an 8-foot 4-inch midship depth, and is powered with a Washington 100-horsepower medium-heavy duty full Diesel engine,

capable of making a speed of 10 knots. The pilot-house control is designed for one-man operation; all deck equipment is electrically operated; and there are comfortable accommodations for four persons in addition to the captain's and warden's staterooms. A well-equipped warden's office is located aft below deck. Captain Sellevold, who has been in Seattle during the past 16 months in charge of the Bureau's office there, and was the inspector in charge of the construction of the new boats, is taking the Grizzly Bear to Juneau, where it will replace the Sea Otter under command of Capt. K. C. Talmage. The Sea Otter, a gasoline engine propelled vessel, less than 50 feet long, purchased by the Bureau in 1921, has traveled more than 125,000 miles on patrol work in the waters of southeastern Alaska, and it will now be relegated to less important work. It is expected that the remainder of the new vessels will go north during the next spring and summer.

Importations

Mexican Quail Exports Authorized.--The Mexican Government has granted 5 concessions to export an aggregate of 65,000 bobwhite quail from northeastern Mexico to the United States during the season February 15 to April 30. Arrangements have been made for inspectors of the Bureau of Animal Industry to examine the quail as they arrive at the ports of Brownsville, Laredo, and Eagle Pass, Texas, and to issue the necessary permits. The Government has also granted concession for the export of 5,000 valley quail from Lower California.

Interesting Birds Entered.--Among the more interesting birds imported under Federal permit during the month were 30 Formosan teal (Anas formosa) and 2 Mikado pheasants (Syrnaticus mikado) from Japan, and 2 Malayan crested fire-back pheasants (Lophura rufa) from Singapore, Straits Settlements.

Predator and Rodent Control

Andrew E. Oman Dies.--After a prolonged illness, Andrew E. Oman, a former rodent-control leader, died on January 30, at Raleigh, N. C. Mr. Oman was born June 27, 1877, in Riley County, Kans. He attended the Kansas State Agricultural College and the Yale School of Forestry, and entered the Government service in July 1906 as a member of the Forest Service, with which Bureau he remained until July 1918. From September 1918 to August 1920 he was with the States Relations Service. On September 1, 1920, he entered the employ of this Bureau as leader of rodent-control work in the Montana district. While with the Bureau, he served in the States of Montana, Kansas, Texas, North Carolina, and South Carolina. He was retired on July 1, 1934, because of disability. It is with deep regret that we report the passing of one who served the Bureau faithfully for so many years.

Rabies Reported in Washington.--Rabies has been present for more than two years in King and Pierce Counties, Wash., reports Leo K. Couch, district agent. During the past six months, 6 adults and 14 children have taken the Pasteur treatment, and examinations have shown positive for rabies in 22 dogs, 1 cat, and 1 cow. The disease has recently spread to Chelan County, Wash., and 4 cases of rabies in dogs have been reported from Wenatchee. It has not been reported among wildlife.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE.
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., March 1935

No. 3

1885 - FIFTIETH ANNIVERSARY NOTES - 1935

Opening Celebration

Bureau Gives Dinner and Dance.--Opening a celebration of the 50th Anniversary of the Biological Survey, more than 200 members, former members, and guests of the Bureau attended a dinner and dance at the Roosevelt Hotel in Washington on February 27. The speakers were the Secretary of Agriculture, Dr. C. Hart Merriam, the first Chief of the organization, Mr. Darling, and Hon. A. Willis Robertson, chairman of the Special Committee on the Conservation of Wildlife Resources, of the House of Representatives.

Mr. Henderson presided as master of ceremonies. He expressed to each of the speakers the Bureau's appreciation and gratitude, and in introducing Dr. Merriam he sketched briefly the history of the Biological Survey.

Those who attended as the guests of the Bureau were: The Secretary of Agriculture and Mrs. Wallace; Dr. C. Hart Merriam, Mrs. Merriam, and Mrs. Zenaida Merriam Talbot; Hon. A. Willis Robertson, of Virginia, and Mrs. Robertson; Paul H. Appleby, assistant to the Secretary of Agriculture, and Mrs. Appleby; J. D. LeCron, assistant to the Secretary, and Mrs. LeCron; Mrs. C. B. Baldwin; Dr. T. S. Palmer and Mrs. Palmer; Vernon Bailey; and Mrs. Paul G. Redington and Miss Mary A. Redington.

The Secretary Speaks.--Secretary Wallace congratulated the Bureau on its past accomplishments and predicted for it an increased usefulness, suggesting that during the coming century the American people may be as deeply concerned with the manifestations of life as during the past they have been with machinery. He pointed out the peculiar usefulness of the Bureau's wildlife studies and services, and in appreciation of the occasion, expressed a renewed interest in the history, functions, and personnel of the Biological Survey.

First Chief Reminisces.--Dr. Merriam, in a reminiscent mood, told of the events that led up to his organizing the new Government unit. He described his boyhood interest in the wild animals and birds about his home in northern New York, his explorations in the Adirondacks, and his studies while attending school in White Plains, N. Y. These early studies, he said, led him to inquire into the distribution of animals and birds as influenced by varying temperatures and to the recognition of life zones, which later he made one of the initial studies of the Biological Survey. He recounted other interesting incidents in connection with his early development as a naturalist. He told, for instance, how he had to pay for the privilege of being admitted to a knowledge of the then closely guarded art of taxidermy and the difficulties encountered because of the fragmentary knowledge of the fauna of this

country. After referring incidentally to the handicaps encountered in establishing the new work--handicaps of limited personnel and insufficient funds--Dr. Merriam described the expedition to San Francisco Mountain in Arizona as an example of the early work carried on by the Biological Survey. Dr. Merriam included in his remarks many complimentary references to his early scientific helpers.

Following the first Chief's talk, Mrs. Merriam, who had served as his assistant in the early days of the Survey, was introduced. She arose to acknowledge the greetings of those present.

Present Chief Views the Future.--Mr. Darling, who followed Dr. Merriam, expressed the group's deep interest in the reminiscences of the first Chief, and a feeling of humility in thinking of the sacrifices made by the founders of the organization. Speaking then of fifty years in the future and the life and work of the Biological Survey in that time, Mr. Darling declared that wildlife must be given a more definite place in a national program of conservation and that ample areas must be allotted to the Bureau for the uses of wildlife. In emphasizing the importance of a national program that will recognize the importance of all species, he pointed out that the Biological Survey should enlarge its program to cover the conservation of wildlife in general. Mr. Darling emphasized especially the importance of restoring areas that had been unwisely taken from wildlife by various interests.

Legislator Voices Interest.--Congressman Robertson voiced his great interest in the work of the Bureau and pledged his cooperation and support as a legislator in the cause of conservation. The people of the United States, he declared, are in need of the tonic influences of the outdoors and nature.

Closes with Dance.--Those attending the banquet later joined with others in a dance which concluded the evening. Dinner music and a male quartet of entertainers during the dance were supplied by the Musical and Theatrical Guild of the Department. Arrangements for the evening were made by a special committee, which included Albert M. Day, chairman, Dr. J. E. Shillinger, Mrs. Margaret Leonard, Miss Margaret Roberts, Miss Wilma Aho, Howard Gammon, and Howard Zahniser.

Banquet Floral Pieces Sent to Bedsides.--The floral pieces that decorated the speakers' table were taken the following morning to a local hospital, where they were presented to Miss May T. Cooke and Mrs. Viola S. Snyder, members of the Bureau who were unable to attend the banquet.

Dr. Merriam's Remarks Revised for THE SURVEY.--The text of Dr. Merriam's remarks, as printed below, were revised by him for THE SURVEY. Dr. Merriam was reluctant to submit a paper consisting so largely of personal references, but he kindly responded to assurances that the readers of THE SURVEY would be well aware that the early history of the Bureau is inseparable from the events and scientific concepts in which he participated personally. This paper, which will be immediately recognized as an invaluable document to those interested in the history of the Bureau and in the development of the natural sciences in this country, is the first of a series being planned for THE SURVEY during this 50th Anniversary year.

The Biological Survey--Origin and Early Days--A Retrospect

By C. Hart Merriam

Having been brought up on my father's farm in northern New York, overlooking the western front of the Adirondack Mountains, I had as a boy become familiar with the chipmunks and squirrels about the house, the woodchucks and meadow mice of the fields, the snakes of the woodlands, the mink and muskrats of the streams. When ten years old I had trapped and caged all of these and had come to know the names of most of the nesting birds of the region.

Nearly every spring my father went into the nearby Adirondacks on fishing trips and often took me with him. During these trips I made the acquaintance of a number of birds different from those at the home farm--among them both species of three-toed woodpeckers, the red-bellied nuthatch, the winter wren, the junco, the white-winged crossbill, the hermit and olive-backed thrushes, the rusty blackbird, the Canada jay, the spruce grouse, several species of warblers, several butterflies, a few trees, and many shrubs and flowering plants different from those at our home. The observance of these obvious differences with the recognition of the fact that they were due in the main to the cooler climate of the Adirondacks was one of the thrilling events of my young life.

Then, on going to school at White Plains in southeastern New York I was again delighted to find that many of the birds, trees, and smaller plants were unfamiliar--indicating still another faunal area.

Thus in boyhood it became obvious that our Adirondack birds and plants belonged to a climate colder than that of my home, only a few miles distant, and that those of southeastern New York were where they were by reason of warmer temperatures.

On talking this over, my father told me that it was well known that birds are much influenced by temperature, that many of the species visiting us in spring pass on to nest in Canada, and others still farther north, not stopping to breed even in our Adirondacks. Then my father, reaching up to the Humboldt shelf of his library, gave me the volume entitled "Views of Nature"--a great work, containing a most revealing discussion of the distribution of animals and plants. I was deeply impressed by Humboldt's account of animal and plant life in the lofty Andes, particularly on the great Chimborazo, where the various species are grouped one above another in successive belts or zones according to differences of temperature and humidity.

Thus, while still a boy I had become impressed by the zonal distribution of breeding birds, and in the single State of New York had recognized three faunal areas. These, as I soon learned, were already known to naturalists as the Canadian, Alleghanian, and Carolinian Faunas, established by the elder Agassiz in 1854 and later accepted and more fully defined by A. E. Verrill in 1863 and by J. A. Allen in 1871. In other words, the subject of the geographic distribution of animals and plants--the very substance and essence of a biological survey--had taken form in my mind at an early date.

During these years, knowing nothing of taxidermy, I had preserved my specimens by removing the intestines and plugging the body cavity and throat with cotton soaked in carbolic acid--thus converting them into mummies. A little later my father took me to the well-known New York naturalist-taxidermist, John G. Bell, who many years earlier had accompanied the great Audubon on his famous trip to the upper Missouri River. Bell said he would teach me the secret of bird skinning for \$100 and that thereafter I might work in his shop as long as necessary. The price seeming excessive, we visited another taxidermist, John Wallace, of William Street. Wallace agreed to teach me the secrets of the art for \$25. This was accepted, and during the winter of 1870-71 I spent Saturdays and holidays in his shop skinning and mounting birds.

In the early spring of 1872 (soon after my sixteenth birthday), Professor Baird wrote me to come to Washington as he had secured my appointment to the position of naturalist on the Hayden Survey of the Territories. I therefore left school and reported to Professor Baird at the Smithsonian, remaining under his instructions until May 1872, when with other members of the Hayden Survey, I went to Cheyenne, Wyo., and a little later to Ogden, Utah. From Utah we traveled north on horseback to old Fort Hall on Snake River in Idaho and thence to the Geyser region of Yellowstone National Park--thus cut off from communication with the outside world for many months during which I made extensive collections of mammals and birds in Utah, Idaho, and Wyoming.

There were no roads. The route led through arid deserts, rolling plains, deep canyons, and dense mountain forests, each the home of a different association of animals and plants.

Being young and susceptible to new impressions, I was keenly observant of these changes and thrilled by the succession of unfamiliar scenes. This naturally broadened my view of the animal and plant life of our country and opened my eyes still wider to the influence of altitude and other factors in determining the distribution of animals and plants.

In the spring of 1873 I collected birds in South Carolina and Florida, particularly along the Ocklawaha River, where for the first time I became acquainted with several subtropical species.

In 1874 I entered the Sheffield Scientific School of Yale and under the guidance of Professors A. E. Verrill and S. I. Smith worked in the Zoological Laboratory, and collected marine invertebrates at various points on the New England coast; and in 1875 was assistant on the U. S. Fish Commission with headquarters at Woods Hole, Mass., from which base marine collecting by means of dredge and trawl was carried on from the steamer Blue Light.

In the early spring of 1876 I visited the coast of Maine, accompanied by the zoologist E. B. Wilson and the ornithologist William Brewster. Wilson and I collected marine invertebrates in the Bay of Fundy while Brewster collected birds at Point Lapreau.

In 1877 my first book--the "Birds of Connecticut"--was published by the Connecticut Academy. By this time I had become so deeply interested in the power of temperature in controlling the distribution of animals and plants that I planned a biological survey of the State of New York. With credentials from Professor Baird and several professors of the Yale Scientific School, I proceeded to Albany and interviewed the paleontologist Professor James Hall and the heads of the other State surveys, hoping to secure their active assistance in obtaining an appropriation for an ornithological survey of New York State. In this I failed utterly, it being the unanimous verdict of those in charge that an attempt to inaugurate an additional survey would injure, if not destroy, their expected appropriations.

This was a severe blow. But having graduated from the College of Physicians and Surgeons of New York I had a profession--medicine and surgery--and determined to engage in its practice. This I did while still living at our family home in northern New York. At this time, having already published my "Birds of Connecticut" (1877), I succeeded, by working nights, in bringing out the two parts of the "Mammals of the Adirondacks" (dated Oct. 1882 and Aug. 1884). The circumstance that my home during the years of medical practice was in a sparsely populated region just west of the Adirondacks enabled me at the same time to continue natural-history investigations.

I was anxious to visit distant regions and in order to do this, secured the services of other physicians to take my practice for a month or two in summer--thus enabling me to make collections in the Bermudas; to make two boat voyages down the River and Gulf of St. Lawrence to southern Labrador--first as guest of the Hon. Judge H. E. Teschereau, Chief Justice of the Supreme Court of Canada; and later in the capacity of ship surgeon of the steamship Proteus, to study the great hooded seal on their breeding grounds on the vast ice floes between Labrador and Greenland--where I secured more than a hundred of their skulls.

During the winter of 1885 I went to Germany and worked for several months with the Blasius brothers at the Braunschweig Museum and, later, visited the great natural-history museums of Berlin, Germany; Leiden, Holland; and the British Museum in London.

Before leaving Germany I accepted an invitation from Count Hans Von Berlepsch to visit him at his home in Munchen. While there I received a cablegram from the United States Department of Agriculture asking if I would accept the pending new position of Ornithologist of the Department. I replied that I would, provided I should be granted carte blanche in shaping the work--for I felt that this might give me the long-cherished opportunity to establish a Biological Survey--this time to include the whole United States instead of the single State of New York! Returning to Washington I entered upon the new duties, formulated plans, and proceeded to carry out the dream of my life. A year later Congress, acceding to my request, broadened the scope of the work to include mammals.

At this time I was fairly familiar with the several faunas of the eastern United States and Canada, having collected birds, plants, and mammals in New York, New England, the Southern States, including Florida, and also in the Western States (then territories) covered by the Hayden Survey in 1872, as already mentioned.

In the spring of 1887 I visited the Ozark Mountains of southern Missouri, and later in the same year, with Henry Gannett, of the Geological Survey, made a buck-board trip of upwards of four hundred miles in the Southern Alleghanies and Great Smoky Mountains of Virginia, Tennessee, and North Carolina--working the summits of Roan Mountain and Mount Mitchell, thereby gaining first-hand knowledge of the summer ranges of birds and the approximate boundaries of the faunal belts of that region.

Feeling the need of more extended personal knowledge of yet unvisited parts of the West, I managed in the summer of 1888 to get away from official Washington long enough to look over a really vast extent of country--traversing the Prairies and Great Plains of the Middle West, parts of the Bad Lands of the Missouri and Little Missouri in North Dakota, the lower Yellowstone and other parts of Montana, the hot basin of the Great Bend of Columbia River from Pasco to Umatilla and Pendleton, including the Grand Coulee, the densely wooded shores of Puget Sound, and the Strait of Fuca from Seattle to Neah Bay and Cape Flattery where the moisture-reeking forests receive the heaviest rainfall of any part of the United States; and the same year went south through the entire length of California with side trips to various parts of the State.

From the foregoing outline it will appear that by the beginning of 1889 I had become personally familiar with the outstanding features of all the faunal areas of North America save only those of the arid southwest. This was a good beginning.

Studies thus far made led to the belief that many factors of scientific and economic importance would be brought to light by a biological survey of a region comprising a diversity of physical and climatic conditions. I felt that if a high mountain where the different climates and zones of animal and plant life succeed one another from base to summit could be studied, the result would be of distinct value to science and to agriculture.

With this in mind, San Francisco Mountain in Arizona was chosen, because of its isolation, great altitude, and proximity to an arid desert. The Survey was made; the major results, stated briefly, are:

1. The discovery that outside of the Tropics there are only two primary life areas in North America, a Northern Boreal and a Southern Subtropical, both extending completely across the continent.
2. The consequent abandonment of the three life areas or provinces then generally accepted by naturalists; namely, Eastern, Central, and Western.
3. Recognition of seven minor life zones in the San Francisco Mountain region--four of Boreal, three of Subtropical or mixed origin.
4. The correlation of the Boreal Zones with corresponding zones in the North and East.

This in subsequent years was followed by biological work in Oregon, Washington, Wyoming, Idaho, Nevada, Utah, California, Arizona, British Columbia, and Alaska. The

most noteworthy of these surveys was the Death Valley Expedition of 1891. Mention should be made also of the Harriman Alaskan Expedition of 1899, of which I was Secretary. This noteworthy expedition permitted field work along the coasts and islands of British Columbia and Alaska, including Bering Sea, and extended even to Plover Bay, Siberia.

The life-zone maps and accompanying publications resulting from these surveys are believed to be of economic value to our farmers, enabling them to know in advance what crops are likely to succeed in the regions in which they live. This is in marked contrast with the practice of the Department when I came into it in 1885, for at that time the same seeds were distributed to farmers in all parts of the United States without regard to the natural areas and climatic conditions!

Without attempting an enumeration of the many contributions to knowledge made by the Biological Survey during the fifty years of its existence--or even for the twenty-five years during which I personally shaped its operations--let me, in conclusion, point with pride to the long series of revisions of groups of mammals, and the volumes on the natural history of little-known parts of the United States, Canada, and Mexico, by such well-known naturalists as Vernon Bailey, Merritt Cary, A. K. Fisher, E. A. Goldman, Ned Hollister, Arthur H. Howell, Hartley H. T. Jackson, C. Hart Merriam, Gerrit S. Miller, E. W. Nelson, Harry C. Oberholser, Wilfred H. Osgood, T. S. Palmer, and E. A. Preble.

Committee on Further Celebration

Personnel Designated.--Mr. Darling has appointed Associate Chief W. C. Henderson, Dr. H. H. T. Jackson, and W. L. McAtee a committee on plans for further special recognition during the year of the 50th Anniversary of the establishment of the Biological Survey. Plans that contemplate radio or other talks or press statements will be furthered by the cooperation of the Division of Public Relations. Because of the heavy pressure of the important official work on which all are now engaged, attempt will be made to have the celebration register effectively with a minimum expenditure of time and effort. The act originating the work of the Bureau (23 Stat. 353) was approved on March 3, 1885, and the new unit began to function on July 1 following.

GENERAL NOTES

Senate Committee Members Appointed.--The Vice President on February 22 re-appointed Hon. Key Pittman, of Nevada, and Hon. Harry Flood Byrd, of Virginia, as members of the Senate's Special Committee on Conservation of Wildlife Resources and appointed Hon. Wallace H. White, Jr., of Maine, as a member of the committee to fill the vacancy caused by the termination of the service of Hon. Frederic C. Walcott. Other members of the committee as now constituted are Hon. Charles L. McNary, of Oregon; Hon. Peter Norbeck, of South Dakota; Hon. Bennett Champ Clark, of Missouri; and Hon. Josiah W. Bailey, of North Carolina. Senator Pittman is acting chairman, and the secretary is Carl D. Shoemaker, 400 Senate Office Building.

House Wildlife Committee Continued.--By resolution of January 10, the House of Representatives continued its Special Committee on the Conservation of Wildlife Resources, and vacancies caused by the retirement of five Members were filled by the appointment of Hon. C. V. Parsons, of Illinois; Hon. F. H. Hildebrandt, of South Dakota; Hon. James P. Richards, of South Carolina; Hon. A. H. Andresen, of Minnesota; and Hon. Leo E. Allen, of Illinois. Other members of the committee as now constituted are Hon. A. W. Robertson, of Virginia, chairman; Hon. Lindsay Warren, of North Carolina; Hon. Frank H. Buck, of California; Hon. William M. Berlin, of Pennsylvania; Hon. Albert E. Carter, of California; Hon. Charles H. Millard, of New York; Hon. Marvin Jones, of Texas; Hon. S. Otis Bland, of Virginia; Hon. Sam D. McReynolds, of Tennessee; and Hon. Roy O. Woodruff, of New York. James F. Stratton, 448 House Office Building, is secretary of the committee.

Tells Farm Editors of Game Management.--Representing Mr. Darling at a conservation conference with members of the Second Annual Conference of Farm Journal Editors with Department of Agriculture and Agricultural Adjustment Administration Officials, Ira N. Gabrielson on March 23 discussed the possibilities of game management on farms. Wildlife on farms, he said, can be greatly increased by providing an ample food supply, improving cover, and controlling predators, and he spoke particularly of the possibilities for increasing the numbers of quail on agricultural areas. The conference was addressed also by the chiefs of other bureaus in the Department interested in conservation.

Bureau Members Contribute to Civic Symphony.--Organizing a volunteer Biological Survey Group to support the National Symphony Orchestra as a civic institution, twenty members of the Washington personnel of the Bureau recently raised a purse of fifty-four dollars as a contribution to the Orchestra's sustaining fund. The contribution entitled the Bureau group to two memberships in the organization, and Arthur H. Howell and Howard Zahniser were designated as voting representatives. Further contributions by Biological Survey members, it is expected, will raise the group's total to sixty dollars. The volunteer action of the Biological Survey group was also helpful in suggesting similar undertakings to other Washington offices of the Government.

ADMINISTRATION

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" series:

- No. 25. Practice to be followed in connection with hire of teams, trucks, tractors, and other equipment and the employment of drivers or operators. (Feb. 26.)
- No. 26. New regulations governing employment of labor under Public Works funds. (Mar. 8.)
- No. 27. Discontinuance of 5 percent deduction from salaries. (Mar. 12.)
- No. 28. Expiration of ERD, ECF, and ECFLA funds. (Mar. 16.)
- No. 29. Restriction on employment in the Federal service of more than one member of a family. (Mar. 21.)

PUBLIC RELATIONS

Official Publications and Releases, copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

The present situation regarding eelgrass (Zostera marina), by Clarence Cottam, Assistant Biologist, in Charge, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-3, 7 pp., Feb. 1935. Received Mar. 26.

Available publications of the Bureau of Biological Survey. Compiled in the Division of Public Relations. Mimeographed Leaflet BS-4, 6 pp., Mar. 1935. Received Mar. 28.

Seek wildfowl improvement in study of eelgrass shortage. Press statement 1612-35. Released Feb. 24.

North Alaska muskrat trappers get 7 more days this year. Press statement 1690-35. Released Mar. 6.

Famous Oregon ranch now a waterfowl refuge. Press statement 1702-35. Released Mar. 7.

Oily water bad for ducks. Clip Sheet No. 869. Released Feb. 24.

Jack rabbits menace Great Plains crops. Clip Sheet No. 870. Released Mar. 3.

Coyotes move east by modern methods. Clip Sheet No. 871. Released Mar. 10.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Ashbrook, F. G. Possibilities of fur farming in New England. Fur Jour. 1 (5): 9-10. Mar. 1935.

Burleigh, Thos. D. Description of a new subspecies of yellowthroat (Geothlypis trichas) from Georgia. Biol. Soc. Wash. Proc. 47 : 21-22. Feb. 9, 1934.

Cottam, Clarence. Wasting disease of Zostera marina. Nature [London] 135 (3408) : 306. Feb. 23, 1935.

Darling, J. N. The need for a national wildlife program. Bird-Lore 37 : 91-94, illus. Mar./Apr. 1935.

Howell, A. H. Attending marvels: A Patagonian Journal, by George Gaylord Simpson. 295 pp., 16 illus. The Macmillan Co., May 1934. (Review.) Jour. Mammal. 16 : 74. Feb. 1935.

Kellogg, Chas. E. Speaking of rabbits--It's the average weight that carries weight. Amer. Rabbit Jour. 5 (3) : 33-35, illus. Mar. 1935.

McAtee, W. L. A little knowledge. Natl. Humane Rev. 23 (2) : [26a]. Feb. 1935.

Nelson, Edward W. (deceased). Carnivorous habits of the northeastern chipmunk (Tamias striatus lysteri). Jour. Mammal. 16 : 66-67. Feb. 1935.

Palmer, T. S. (retired). The need of further international cooperation in the study and protection of Pacific waterfowl. Proc. 5th Pacific Sci. Cong. in 1933, pp. 4095-4099, 1934.

Roahen, K. F. Migratory bird problems. Mont. State Fish and Game Comm. Biennial Rept. 1933-1934. p. 10, 1935.

April Conservation Day Programs Announced.--Land requirements for agriculture during the next quarter century, available land resources, water erosion, soil depletion, and crop control, and the Izaak Walton League's national convention will be discussed in the National Farm and Home Hour Conservation Day programs during the first three weeks in April, says an announcement by the National Broadcasting Company. The programs, devoted to promoting the preservation of the Nation's natural resources, can be heard each Friday at 12:30 p.m., eastern standard time. The schedule of talks announced is as follows:

April 5: B. R. Stauber, Bureau of Agricultural Economics, "How Much Land Shall We Need for Agriculture During the Next 25 Years"; Dr. H. H. Bennett, Chief, Soil Erosion Service, "How to Control Water Erosion."

April 12: Special broadcast of highlights from Izaak Walton League of America national convention, Chicago, including an address from Washington by Secretary Wallace on "The Land-utilization Program as it Affects Wildlife."

April 19: Curtis F. Marbut, Bureau of Chemistry and Soils, "Land Resources Available for American Agriculture."

WILDLIFE RESEARCH

Speaks to Rotarians and Men's Club.--Dr. Bell was guest speaker at the Rotary Club luncheon at the Willard Hotel, March 13, and spoke on the Biological Survey and its work. On March 21 he addressed the men's club of the Riverdale (Md.) Presbyterian Church on wild animal life, illustrating his talk with slides.

Regional Director Reports in Washington.--Ira N. Gabrielson has reported for duty as Assistant Chief of the Division of Wildlife Research, by transfer from game-management director of the Pacific (No. 1) Region, with headquarters at Portland, Oreg. He is now actively engaged in developing plans for cooperation with the Forest Service and other agencies in the research program so as to serve best the interests of wildlife restoration.

Biological Investigations

Conducting Wildlife Survey.--Dr. Walter P. Taylor, H. H. Hoyt, and Harry French are making a preliminary survey of wildlife conditions on the Wichita National Forest and Game Preserve, and are working out suggested plans for a research program on game-management problems.

Continue Mexican Studies.--E. A. Goldman and Luther Goldman report interesting observations on waterfowl and valuable contacts with Mexican officials and sportsmen. They have obtained important data on the abundance of waterfowl wintering in Mexico and on ranges of certain valuable species as well as regarding hunting and natural conditions affecting the welfare of the birds.

Completes Check of Olympic Elk.--O. J. Murie has completed checking up on the Olympic Peninsula conditions affecting the Roosevelt elk, with particular reference to their numbers and the available food supply for the herd.

Alaskans Visit Washington Offices.--Lawrence J. Palmer and his wife are making an extended trip in the States, visiting various points of interest. Mr. Palmer is in charge of the Reindeer, Musk Ox, and Mountain Sheep Experiment Station in Alaska. His bulletin entitled "Raising Reindeer in Alaska" has just been issued, and he has recently written interesting reports regarding results of the experiments with musk oxen and mountain sheep and also on crossbreeding experiments with reindeer and caribou. Mr. and Mrs. Palmer made a short visit in Washington about the middle of March and planned to leave Seattle the last of the month to return to the Station.

Observes Caribou in Minnesota.--C. M. Aldous recently completed a trip into northern Minnesota to study the caribou and was successful in taking still and motion pictures of these animals, the only ones known to occur within the United States proper. He also visited Brookings and other points in South Dakota for the purpose of serving as consultant to the Land Planning Board on subjects affecting wildlife conservation and restoration.

Detailed to Forest Experiment Station.--Thomas D. Burleigh who has spent some months in Washington working up reports on results of his investigations at the Appalachian Forest Experiment Station has been detailed to the Southern Forest Experiment Station with headquarters at New Orleans, where he will be engaged in studying wildlife conditions as they affect forest reproduction in that region.

Inspect Scientific Collections.--Recent visitors to the Bureau's mammal collections at the National Museum were Dr. A. S. Pearse, head of the Zoology Department of Duke University, Durham, N. C., on February 23; and on March 13, Dr. A. M. Bailey, Director of the Chicago Academy of Sciences, who is on an extended lecture tour in the East.

Lectures on Birds and Artic Hares.--A.H. Howell lectured on March 4 before the Woman's Club of Arlington, Va., his subject being "Bird Migration." On March 23 he gave an illustrated talk before the Biological Society of Washington on "Habits and distribution of the American arctic hares."

Reindeer Cross the Mackenzie.--After a 5-year journey from western Alaska, a herd of reindeer and their herders have recently succeeded in crossing the Mackenzie River and are near the Canadian Government's reindeer station, consisting of several hundred square miles of range, at Kittigazuit. The animals will be used to develop a stable food and clothing supply for the inhabitants of northern Canada threatened with loss of food by the growing scarcity of wild game species upon which they formerly subsisted. The Canadian venture was undertaken as a result of the success of the reindeer industry in Alaska, which was described in THE SURVEY for February (p. 24). Canadian biologists made a thorough study of the food resources of the area on which the reindeer are to be placed and made careful comparison with the forage in Alaska. They conferred with the representatives of the Biological Survey who have been conducting feeding, breeding, and management studies on the reindeer in Alaska in order to benefit by their extensive studies of the food plants suited to reindeer and of herd-handling practices required to prevent deterioration of the ranges. The success of this plant of reindeer in Canada will be watched with great interest because of its far-reaching possibilities for improving social and economic conditions for these far northern people.

Distribution and Migration of Birds

Makes Aerial Survey of Chesapeake Bay.--An aerial survey of the Chesapeake Bay from Havre de Grace to Tangier Sound was made on March 4 by F. C. Lincoln and Clarence Cottam, through the cooperation of the Navy Department, which furnished two seaplanes for the purpose. The majority of the waterfowl were found concentrated in the northern part of the bay, surveyed by Mr. Lincoln, who observed nearly 48,000 ducks, about

3,000 swans, and 2,600 geese. Mr. Cottram in the southern part of the area covered saw about 8,000 ducks, 800 swans, and 675 geese. Mr. Lincoln's observations showed more than 30,000 canvasbacks and redheads and more than 12,000 lesser scaups. The flight demonstrated the value of aerial surveys when they can be made with seaplanes, which allow flying at low altitudes.

Number of Banded Waterfowl Totaled.--A checking of the number of waterfowl banded in the last 15 years in the four North American flyways gives the following totals: Atlantic, 32,164; Mississippi, 66,541; Central, 14,362; and Pacific, 61,423; a grand total of 174,490.

Bird Band Serves to Identify Lost Keys.--A key ring containing a number of keys and bird band B676677 was recently received with the statement that it was found in the building of The Chicago Stadium Corporation after a hockey game. The records showed that the bird that had carried the band was a mallard, banded by W. P. Houle, of Forest Lake, Minn., and examination of his returns showed it to have been killed on December 13, 1933, by R. W. Coleman, of Peoria, Ill. On communicating with Mr. Coleman it was learned that the keys were his, and they were accordingly returned.

Banded Ducks Shipped from Louisiana to Other Points and Released.--E. A. McIlhenny is continuing his experiments in shipping banded ducks to other cooperators to be released. Twelve crates containing 100 male pintails were sent to U. S. Game Management Agent Hugh M. Worcester, at Berkeley, Calif., where they arrived in good condition and were immediately released at Lake Merritt, Oakland, Calif. Another shipment was made to the Blackwater Migratory Bird Refuge, Dorchester County, Md., and a report from Acting Supervisor Peter J. Van Huizen shows that these birds also arrived in good condition and were released. Some interesting returns may be anticipated from these transplanted birds, as shown by Mr. McIlhenny's previous investigations along this line. During the past season he retrapped birds that had been shipped to Berkeley, Calif.; North Eastham, Cape Cod, Mass.; Washington, D. C.; and Voltage, Oregon.

Interesting Banding Returns Received.--Among recent interesting reports of the recovery of banded birds are the following: A red-tailed hawk, banded May 26, 1934, at Knowlesville, N. Y., was killed November 29, 1934, at Willow Hill, Ill.; a cardinal, banded April 23, 1926, at La Crosse, Wis., was found dead in the same locality on January 23, 1935, showing that the bird was at least nine years old; a pintail, banded April 11, 1934, at Ellinwood, Kans., was shot January 29, 1935, at Laguna de Garrobas, 15 miles southeast of Puerto Cortes, Spanish Honduras; a black-crowned night heron, banded June 18, 1932, at East Springfield, Mass., was killed February 15, 1935, at Los Hermanos, Cuba; a common tern, banded in July 1934, at Brant Beach, N. J., was captured and released on January 1, 1935, at Macuto, Venezuela. In addition to these a number of white pelicans banded in Yellowstone National Park have been reported from several localities in Mexico, and brown pelicans banded on Pelican Island, Mosquito Lagoon, Fla., in November 1934, continue to be reported in Cuba.

Food Habits

Attends Mosquito-Wildlife Conventions.---Clarence Cottam attended a joint mosquito-control and wildlife meeting in New York City on February 28, called by the New York State entomologist, for the purpose of smoothing out differences between mosquito-control operators and those interested in wildlife. He reports that a very cooperative spirit was manifest and that many suggestions were given for affording a means of controlling mosquitoes and at the same time saving the marsh habitat for wildlife. The feeling was expressed that there is great need for further research along this line.

On March 7 and 8, Mr. Cottam and Chas. E. Kellogg, of Fur Resources, attended the annual convention of the New Jersey Mosquito Extermination Association at Atlantic City, which was attended by mosquito-control workers from various other States, including New York, Connecticut, Delaware, and Utah, and by members of the Federal Bureau of Entomology. Messrs. Kellogg and Cottam report that a more cooperative spirit between mosquito workers and those interested in wildlife was in evidence than in previous gatherings of this kind. Request was made for cooperation of the Biological Survey to outline methods of procedure that will be the least injurious to wildlife. The delegates expressed a desire to cooperate in every way possible and at the conclusion of the meeting adopted a resolution requesting the Secretary of Agriculture and the Public Works Administration to allocate funds for conducting a careful scientific investigation with a view to developing effective methods of control of mosquitoes and at the same time saving waterfowl and marsh habitats.

Inspects Mosquito-Control Projects in Southern Delaware.---On March 5 and 6, Messrs. Kellogg and Cottam inspected waterfowl and muskrat areas in southern Delaware to determine what effect mosquito control was having on wildlife and to recommend improvements in methods. The Delaware State Mosquito Commission appeared anxious to follow any procedure that would save wildlife and at the same time destroy pest mosquitoes. On the return trip from the New Jersey Mosquito Convention, Messrs. Cottam and Kellogg inspected a proposed Federal waterfowl refuge area in Delaware.

Makes Aerial Surveys of Waterfowl.---On February 20, Mr. Cottam, with the aid of an airplane provided by the Navy Department, made an aerial survey of waterfowl abundance on the Potomac and the lower Chesapeake Bay. The flight was made in an amphibian plane so that it could fly in safety close to the surface and light on the water if necessary. The inspection was made from Washington, D. C., to Norfolk, Va., and on the lower Chesapeake from Cape Charles to the Maryland line. Mr. Cottam reported a surprisingly small number of waterfowl in the area visited. On March 4, he and Frederick C. Lincoln made the aerial surveys mentioned on page 47, of the waterfowl population on the Chesapeake. Both men expressed the opinion that aerial surveys afford accurate and reliable information on the relative abundance of the various waterfowl species.

Observes Waterfowl Abundance.---On March 8 and 9, Messrs. Kellogg and Cottam inspected waterfowl and muskrat marshes along the Delaware River in the vicinity of Salem, N. J. They report an unusual concentration of pintails, but only moderate numbers of black ducks. Fair numbers of redheads, canvasbacks, and scaups were seen on the upper Gunpowder River, Md., opposite Fort Hoyle and Edgewood. Most of the ducks had left the Susquehanna Flats, but 4,000 to 5,000 swans still remained.

Continues Survey of Refuge Areas.--A. C. Martin is continuing refuge surveys in California, Arizona, and New Mexico and at the conclusion of this work will carry on similar studies in Washington, Oregon, and Montana.

F. M. Uhler accompanied J. C. Salyer, chief of the Migratory Waterfowl Division, on an inspection of proposed waterfowl refuge areas in Louisiana and Texas, chiefly in the Gulf coast duck-and-geese concentration section. Pressure of other work made Mr. Salyer leave Texas on March 5, but Mr. Uhler continued the investigations southward to the mouth of the Rio Grande. On his return, Mr. Uhler inspected an Agricultural Adjustment Administration project in Texas to study the practicability of establishing a new waterfowl sanctuary there, and visited a city-owned reservoir in the section to note the possibilities of improving it for migratory birds. He returned to Washington March 16.

Neil Hotchkiss returned to Washington on February 23 from an inspection during four weeks in Florida, Alabama, North Carolina, and Virginia, of proposed waterfowl refuges. As a result of his surveys of waterfowl abundance, he reported fewer birds even than last year.

Addresses Biological Society of Washington.--Mr. Cottam addressed the Biological Society of Washington on February 23 on the eelgrass situation along the Atlantic seaboard.

Makes Crow-Depredation and Control Studies.--On February 21, S. E. Aldous left Denver, Colo., to make a study of crow depredations and methods of control in Oklahoma. A report indicates that he is obtaining valuable information on methods of control.

CCC Labor Improves Wildlife Conditions.--J. Paul Miller attended a meeting of the New England Section of the Society of the American Foresters, at Springfield, Mass., February 20 and 21, and reports the adoption of a resolution requesting that emergency funds be made available to the Biological Survey for research work in forest-wildlife management. Mr. Miller states that he is using CCC labor to make clearings and improve wildlife conditions on the forest experimental tract on the Pillsbury Reservation.

Fur Resources

Resigns to Return East.--Mrs. Iva May Potter, who has taken care of the secretarial work at the U. S. Rabbit Experiment Station, at Fontana, Calif., for the past 16 months on part time, resigned effective March 1, to return East. She has given splendid service during her stay and her loss is regretted.

Rabbit Station Extends Facilities to Local Groups.--George S. Templeton, director of the U. S. Rabbit Experiment Station, reports successful rabbit meetings of various groups at the station. One group was primarily interested in marketing and in formulating a program for working on related problems. Another, comprising 39 members of the rabbit-breeders' associations, has held its monthly meetings at the station, and members of the station staff have been called upon to enter into the discussions of various rabbit problems. This group had a total of 1,000 breeding does. In February, Mr. Templeton attended the monthly meeting of the Orange County Rabbit Breeders Association at Garden Grove, Calif. It was voted to hold the next

meeting at the station. On February 21, the Poultry Service Club for southern California held its meeting at Fontana. This club is made up of poultry men, extension workers, hatchery men, rabbit breeders, and field representatives of various commercial organizations in ten southern California counties. Mr. Templeton outlined activities of the experiment station and discussed the feeding of rabbits.

Studies Effect of Mosquito Control on Muskrat Marshes.---Chas. E. Kellogg visited the shore of Delaware to inspect some of the demonstration plots that have been established there and to study the effect of mosquito-control ditching on the muskrats. Five demonstration plats have been set up on which water-level readings, muskrat take, and changes in vegetation are being carefully noted at definite intervals. From there he went to Atlantic City, in company with Mr. Cottam (see page 49) to attend the conference of the New Jersey Mosquito Extermination Association, where numerous talks were given pertaining to the mosquito-control effects upon muskrats and other wildlife. On the return trip to Washington, Mr. Kellogg inspected the best muskrat area in New Jersey, in the vicinity of Salem.

Fox Studies Reported.---Walter G. McBlain, acting director of the U. S. Fur Animal Experiment Station, at Saratoga Springs, N. Y., reports that 80 percent of the vixens had mated by March 1. He also reports that experimental results show that leaving a fur run vacant for two years proves effective against hookworm contamination, but ineffective against control of either lungworms or bladder worms.

Representative of Russian Fur Syndicate Visits Fur Farm.---On February 10, the head of the Soviet Fur Syndicate and representatives of the Amtorg Trading Corporation, of New York City, visited the Fur Animal Experiment Station. Frank G. Ashbrook, with Acting Director McBlain, conducted the party on an inspection tour of the farm and explained the work in progress. The visitors were delighted in having the opportunity to see the farm, to obtain first-hand information on feeding, breeding, and handling fur animals in captivity, and to inspect the pens and dens for minks and foxes, and other equipment. The party returned to New York City by automobile that afternoon.

Courses Established in Fur Farming.---During the past month inquiries have been received from the Universities of Wisconsin and Montana, and the Pennsylvania State College, concerning the establishment of courses in the field of fur farming. The first two have already started courses in certain subjects pertaining to this field, and the Pennsylvania State College is considering doing likewise. This move is expected to assist materially in developing the new and rapidly growing industry of fur-animal production. One of the text books used is Mr. Ashbrook's "Fur Farming for Profit".

Disease Control

Appointment of Collaborator.---E. V. Komarek has agreed to serve as a collaborator in the Section of Disease Control for the purpose of furnishing information on the losses in wildlife in the Southeastern States. Mr. Komarek is stationed at Thomasville, Ga., where he is engaged in assisting H. L. Stoddard, working on upland game birds and in addition making a comprehensive study of the mammalian ecology of the Southeast, particularly of the Smoky Mountain region. In his studies he comes across many abnormal specimens that indicate evidences of infections and parasitic diseases.

Medical Technician Appointed.--Mrs. P. W. Wetmore, of Wichita, Kans., has been temporarily appointed in the Washington laboratory as medical technician. A great need for this type of work has been felt for a long time, and pending opportunity for detailed study much accumulated pathological material has been kept in storage.

MIGRATORY WATERFOWL

Engineering Work Completed.--It is gratifying to record that as a result of diligent efforts on the part of the cooperating divisions to complete engineering work before March 31, the date when the emergency construction authorizations expired, this phase of the National Migratory Waterfowl Program is accomplished. Contracts have been awarded for the construction of the necessary dams, dikes, and water-control structures for 10 of the new migratory waterfowl refuges now being developed by the Bureau, as follows: Arrowwood, Upper Souris, Des Lacs, and Lower Souris in North Dakota; La Creek and Sand Lake in South Dakota; Medicine Lake in Montana; Seney in Michigan; Chautauqua in Illinois, and Squaw Creek in Missouri. Construction contracts have also been awarded which provide for the drilling and casing of wells at Lake Andes, La Creek, Sand Lake, and Waubay Migratory Waterfowl Refuges in South Dakota, and the Savannah River Wildlife Refuge, in South Carolina.

Contracts for Buildings Awarded.--Contracts, based on competitive bids, have been awarded for the construction of headquarters buildings and field laboratories on the following refuges (Migratory waterfowl refuges, unless otherwise noted): Upper Souris, Lostwood, Lower Souris, Arrowwood, and Des Lacs in North Dakota; Medicine Lake in Montana; Sand Lake, Waubay, and La Creek in South Dakota, Seney in Michigan; Lake Isom, in Tennessee; Squaw Creek, in Missouri; Trempealeau, in Wisconsin; Cape Romain Migratory Bird Refuge and Savannah River Wildlife Refuge, in South Carolina. These structures are to be complete and modern in every respect, and will not only afford excellent living quarters and office facilities, but will provide a first-class laboratory, so that scientific studies may be made of the various forms of wild--life on the refuges, thus facilitating efficient administration.

Benefits are Far-reaching.--The problem of averting the almost-certain disaster now facing our migratory waterfowl is one of national moment and is, of course, the primary objective of the Bureau's refuge program. There are many other important factors however, that will be highly advantageous to the communities in which the refuges are located. All of these refuges will provide for the conservation of an extremely vital water resource, thereby increasing the value of the adjacent upland farm land. This water is at present being dissipated. Provisions will be made to make recreational facilities available to these communities. Local labor will be used for the construction work on the refuges, and the payrolls, as well as the millions of dollars that will be expended for the acquisition of lands, will afford immediate relief to localities hard hit by the drought and by existing economic conditions.

Southern Refuge Site Examinations Continued.--Mr. Salyer, who is directing the program, has returned to Washington after having hurriedly covered waterfowl areas in Louisiana and Texas that had been represented as being particularly meritorious for refuge purposes. He was accompanied by F. M. Uhler, of the Section of Food Habits, as mentioned on page 50. As a result of these personal inspections, he has selected

some half dozen excellent waterfowl sites that will be acquired and developed by the Bureau. Their acquisition will guarantee the establishment of much-needed waterfowl wintering grounds. Mr. Salyer points out that the recent rapid development of oil and sulphur wells within this area is seriously endangering the waterfowl that winter there, and it is highly essential that provision be made at once to establish large refuge areas where waterfowl can remain secure from both the invasion of hunters and the danger of pollution.

Assembles Data in Washington Office.---Walter W. Bennett, Jr., biologist of this Division, has been working in the Washington office making an estimate of the complete requirements for a major migratory-waterfowl refuge. After consulting with other Bureau technicians and going over Bureau waterfowl records, he completed his report on March 25, and submitted it to the Chief, after which he left immediately for Arizona and Utah to continue his work of examining potential refuge sites.

Confers With Washington Officials.---Chas W. Okey, senior hydraulic engineer, was in Washington conferring with Mr. Salyer and with S. H. McCrory, Chief of the Bureau of Agricultural Engineering, in the interest of the waterfowl projects being undertaken in the Central Flyway. He returned to his office in St. Louis, Mo., to continue the direction of parties, now making engineering surveys of the Chautauqua Drainage District area, in Mason County, Ill.; the Squaw Creek area, in Holt County, Mo.; and Lake Isom in Lake and Obion Counties, Tenn. Excellent progress has been made on these surveys under Mr. Okey's direction.

Engineer Appointed.---S. A. Young was appointed, on March 1, to the position of chief of party and is directing the survey now being made of the Turnbull Slough area, in Spokane County, Wash.

Favorable Legislative Program.---The North Dakota State Assembly has recently passed several bills of tremendous importance to the Bureau's conservation activities. Their passage was not entirely clear sailing, but through the splendid cooperation of North Dakota conservationists some highly desirable measures were enacted. These included acts making the draining of a meandered lake within the State a misdemeanor; delegating authority to the Governor and the Board of University and School Lands to grant to the United States all necessary easement rights on State lands required to establish any wildlife--conservation project; and providing that all inundated lands upon which the owner has granted an easement to the United States for the purpose of creating a wildlife refuge shall be exempt from taxation. It can easily be seen how greatly these acts, particularly the last two, will benefit the Bureau's conservation activities in North Dakota. The efforts of those North Dakota conservationists who made the passage of these bills possible are sincerely appreciated.

Local Cooperation Aids Refuge Establishment.---New evidence of public cooperation in promoting the Migratory Waterfowl Program presents itself almost every day. In Montana, for example, the Red Rock Lake Migratory Waterfowl Refuge is shaping up much better than was expected, and the difficulties that were anticipated in closing this extremely popular hunting area are now practically nonexistent. This is due to the public-spirited attitude taken by the landowners in the vicinity, and more particularly to the cooperation of the gun clubs, which have been long established on this lake, in their willingness to conform with whatever restrictions the Bureau

deems necessary to save the waterfowl. The Bureau is particularly fortunate in being able to establish this refuge without difficulty, as here one of the last remnants of the trumpeter swan nests. Establishment of this sanctuary should avert the certain extinction that was facing this valuable species.

LAND ACQUISITION

Conservation Commission Report Issued.--The Report of the Migratory Bird Conservation Commission for the Fiscal year ended June 30, 1934, was issued during February as House Document No. 104, of the 74th Congress, 1st Session, 3 pages. Mr. Dieffenbach is secretary of the Commission and has a small supply for any one wishing a copy.

FERA Projects.--The following proposed migratory-waterfowl-refuge-projects have been approved by the Federal Emergency Relief Administration: La Creek, S. Dak.; an enlargement of Mud Lake, Minn.; Lower Souris, N. Dak.; Sand Lake, S. Dak.; and Senev Marshes, Mich.; and the proposed Bark River project in Wisconsin has been submitted to the Administration for approval.

Progress of Optioning.--Optioning on 35 FERA projects has progressed to the point where we can now report that options or commitments have been obtained on approximately 67 percent of the total areas involved. It is hoped to option approximately 767,000 acres in all to complete the present program. In some cases it will be necessary to obtain title by condemnation proceedings in order not to delay the construction program.

Public Domain Projects.--Executive orders originating in this division, and requests for the Secretary of the Interior's approval of 27 public domain refuges, if approved by the President, will set aside approximately 15,000,000 acres of public lands for the conservation of native and migratory wildlife of all kinds.

Preparation for Boundary Surveys.--Arrangements have been made to resume field work held up during the past winter on boundary surveys in the North Central States.

Movements of Personnel.--The following men have reported to Washington from the field: George S. Burrell, engineering aid; Earl F. Gates, acquisition aide; and R. M. Rutherford, associate land valuation engineer. Carey Bennett and Doren E. Woodward, chiefs of party (acquisition) were also called to Washington for conference, but have now returned to their districts.

GAME MANAGEMENT

Refuge Administration

Buffalo Transferred and Exchanged.--On February 28, 19 buffalo were removed from the herd at the National Bison Range, Mont., and transferred by truck to the Crow Indian Agency, Mont., where a herd of these animals is being established. Four fine bulls were brought to Niobrara Game Preserve, Nebr., in February from the Custer State Park, S. Dak., in exchange for the four bulls taken from the herd at the Niobrara Preserve. The State Park transferred the buffalo by truck.

Notes on Wildlife at Sullys Hill Game Preserve.--A 1½-year-old male buffalo, considered surplus in the herd at Sullys Hill Game Preserve, N. Dak., was turned over to the Fort Totten Indian School, in February, and slaughtered for use as meat for the school children. About 70 bushels of mixed grain were put out during February at Sullys Hill Preserve for relief of the pheasants, partridges, grouse, and prairie chickens.

Increased Numbers of Elk Feeding at the Elk Refuge.--At the end of February elk being fed at the Elk Refuge, Wyo., had increased to 9,700 animals on the three feeding grounds within the refuge.

Predators Active on Game Preserves.--Ten antelope are reported as found dead at Wind Cave Game Preserve, S. Dak., during the winter, some of them apparently killed by coyotes and bobcats; and 9 mule deer are reported as killed by predators during February at the National Bison Range, Mont. Ernest J. Greenwalt, in charge of the Charles Sheldon Wildlife Refuge, Nevada, states that coyotes were scarce at that refuge during the winter, most of them having kept to the valleys where rabbits were concentrated during the cold weather.

Notes from Big Lake Bird Refuge, Ark.--In the vicinity of Cottonwood Point within this refuge, blackbirds and starlings have a resting place which they visit by thousands each year. In 1934, it was estimated that 25 percent of the birds roosting in that part of the refuge were starlings, but thousands became sick and died that year from an undetermined malady. Fewer of this species visited the refuge during the past winter. Some of the coldest weather of the winter was experienced during the week of February 24, and Steven B. Crossley, in charge of the refuge, fed the birds frequenting the area. While the birds were feeding in the yard, at headquarters one morning late in February he noted cardinals, rusty blackbirds, red-winged blackbirds, blue jays, white-throated sparrows, red-cockaded woodpeckers, one hairy woodpecker, and one flicker. Two fox squirrels were also feeding there. The migration flight from the south began on March 11, and among the arrivals noted resting on the main lake on that date were 1,000 mallards, 1,500 lesser scaups and ringnecks, 500 pintails, 500 black ducks, and a small number of ruddy ducks and shovelers. These birds coming from the south remain but a short time before resuming their flight. Buffalo gnats were reported so numerous on this refuge in March that it was impossible to use work horses needed in beginning the work on a road project.

Accidental Death at Blackwater Migratory Bird Refuge.--Ralph Elam, who was attached to the CCC camp at the Blackwater Migratory Bird Refuge, Md., was accidentally killed on March 9 while working on the removal of fire hazard. At the time the accident happened he was about to begin working on piling brush near where two other members of the camp were cutting down a 25-foot pine stub. He was standing about 20 feet away with his back to the tree and apparently did not hear, or heed, the warning call "Timber!" indicating that a tree was about to fall. He was struck across the head, and it was the opinion of the camp physician that he was killed instantly.

Malheur Lake Filling Again.--Since October 1 the entire flow of the Blitzen River has been going into the old bed of Malheur Lake and each day sees a growing body of surface water as the peat of the old lake bed becomes saturated. When 500 acres were flooded, thousands of geese on their southward migration found the tiny body of water and remained throughout the fall. On March 1 there were between 35,000 and 40,000 ducks on the area, with pintails first in number, mallards second, baldpates third, and green-winged teals fourth. George Benson, in charge of the refuge, reports that 25,000 snow geese, 15,000 white-fronted geese, 6,000 to 8,000 Canada geese, and 400 or 500 swans had arrived at the lake on their northward flight. With about 10 sections now flooded and an abundance of snow still remaining in the Steens Mountains, a large part of the old lake should be reflooded by June 1. The reflooding of Malheur will give a thrill to every biologist and sportsman who is familiar with the old days. Until 1920 it was the greatest waterfowl nursery in North America. Every species of duck and goose that nests that far south was there in numbers and together with the swarming myriads of other water birds at times crowded the open water. Since that time the lake has gradually receded until during the last few years it has dried up entirely each summer and has been deserted by the birds. With the restoration of the water now possible the birds should gradually build up to something like their old-time abundance.

Camp Members Publish Newspaper.--Members of the Educational Department of the CCC camp at the Swanquarter Migratory Bird Refuge, N. C., are publishing a monthly paper entitled "The Swan." The first issue, March 1935, a copy of which was sent to the Survey, contains a history of the camp, which was named Camp Redington in honor of Paul G. Redington, chief of the Biological Survey when it was established.

Law Enforcement

Duck Bootlegging Gets a Jolt.--The Survey's drive in California against duck bootleggers has been particularly successful, and 17 offenders arraigned in State court for selling ducks have paid more than \$2,000 in fines. Of the cases taken into Federal court, seven so far have been disposed of as follows: Two for killing ducks in excess of the daily limit, \$50 each; one for possessing ducks in excess of the limit allowed, \$500; five for selling ducks, \$50, \$100, \$150, \$200, and \$250 each; one for killing ducks at night, \$200; and two others for selling ducks, jail sentences of 30 days and 3 months, respectively.

Forty-two persons in Illinois, chiefly along the Illinois River, were apprehended by field agents in December. Most of the accused have already been prosecuted and fined in the Federal court, but a few cases still remain to be disposed of. Some of the group arraigned in Federal court at Springfield, Ill., on March 11 were required to pay fines ranging from \$20 to \$75 each.

Illegal Traffic in Quail Brings Arrests.--Two residents of Mississippi engaged in transporting live quail from that State to North Carolina, were taken in custody by Federal agents while they were passing through Alabama. They were arrested and arraigned before a United States Commissioner and after furnishing bond were released. The Survey is exerting every effort to check effectively illegal interstate shipments of live quail from Mississippi.

Confers with Enforcement Officers in Illinois.--F. P. Callaghan spent several days visiting important waterfowl areas along the Illinois and other rivers and conferring with United States game-management agents at Peoria and Springfield, Ill., during the early part of March.

Importations

Flying Foxes Executed.--Four flying foxes, or fruit bats (Pteropus poliocephalus), which are prohibited by law from importation into the United States, were entered at New York without permit on December 7 in a shipment of miscellaneous birds and other animals from Germany. When application was later made for a permit these animals were listed by the importer as "flying dogs," but they had been shipped to the Chicago Zoological Society, Brookfield, Ill., before the Survey's inspector had opportunity to examine them. It was definitely ascertained, however, that the "flying dogs" were flying foxes. This information was then communicated to the Bureau of Customs, and pursuant to its order for their destruction the animals were suffocated by carbon monoxide gas on February 19 under the supervision of the customs officers at Chicago. The Chicago Zoological Society, however, was permitted to retain the dead bodies of the animals to be mounted for exhibition purposes.

Mexican Quail and Other Bird Imports.--A few shipments of bobwhite quail have been imported from Mexico since the season opened on February 15. The total number entered up to March 9 was 5,284; of this number 1,734 were entered at Laredo and 3,500 at Eagle Pass, Tex. Among the more interesting species of other birds imported during the month were 5 amethyst doves (Phapitreron amethystina), 1 yellow-breasted fruit pigeon (Leucatreron occipitalis), and 1 blue-tailed lory (Eos histrio) from the Philippine Islands.

Predator and Rodent Control

Wyoming Provides Control Funds.--District Agent Adolph S. Hamm has informed the Bureau that Governor Miller of Wyoming has approved an appropriation by the Wyoming State Legislature of \$15,000 for hunters' salaries and \$5,000 for rodent control in the State for the coming biennial period; also that the appropriation included \$20,000 for the payment of bounties on predatory animals.

Spirit of Cooperation in Game Programs Encouraged.--District Agent George E. Holman, of Utah, addressed 350 members and friends of the Weber County Fish and Game Protective Association at their meeting at Ogden, Utah, on February 6. He stressed the necessity for a spirit of fairness, cooperation, and sportsmanship between sportsmen's organizations and other interests in commercial fields. The meeting was concluded by showing two reels of motion pictures depicting the results of killing wild game indiscriminately and the advantages of a planned wild-game program.

Snowshoe Hare Control Undertaken in Wisconsin.--District Agent G. C. Oderkirk in reporting on snowshoe-hare control projects, as conducted under the ECW program on national forests in Wisconsin, reports that every attempt has been made to dispose of the rabbits taken, for food purposes. Approximately 50,000 a month are collected by the ECW workers, and it has been a real problem to find a way to dispose of these rabbits for food. On January 19 Mr. Oderkirk reported that there were at that time 10,000 rabbits on hand, but no definite market in sight.

FERA Conducts Rabbit Control.--A delegation of ranchers from the Goshen Hole area obtained the approval of a Federal relief project whereby ammunition for effecting jack-rabbit control was furnished by the FERA, reports Adolph S. Hamm, district agent of Wyoming. Four drives in this area, under the supervision of Mr. Hamm, have accounted for approximately 15,000 jack rabbits.

Changes in Personnel.--R. B. Deen, who has had experience assisting Roy Moore in rodent-control activities, has been appointed district agent in rodent control with headquarters at St. College, Miss. He will have supervision of rodent-control activities under Regional Director Moore.

George B. Lay has been appointed district agent in rodent control with headquarters at Raleigh, N. C. Mr. Lay will work under the direction of Regional Director James Silver and will have charge of rodent-control activities in the States of North Carolina and South Carolina.

Mrs. Beulah Ostendorph, clerk in the office of Regional Director Bertrand E. Smith, at Portland, Maine, has been transferred, effective March 4, to the Washington office. Mrs. Ostendorph will resume her work in the Section of Predator and Rodent Control.

To Manufacture Pocket-Gopher Probes.--Arrangements are being made to have pocket-gopher probes manufactured at the Bait Mixing Station, Pocatello, Idaho, under the direction of Paul Quick. These will be made up in two sizes for distribution in the field. When such distribution is made, charges for actual cost of manufacture will be made against the allotments of the districts receiving the probes. This procedure will insure prompt delivery and so expedite field operations.

Plan Rodent Control in Shelter-Belt Area.--Under the direction of F. E. Garlough, four investigators are working in the shelter-belt region in the Middle West, and plans are being completed to begin actual control of destructive rodents on areas to be planted to trees during the spring months. An additional allotment of \$7,500 has been set up for this control activity.

THE SURVEY

LIBRARY
RECEIVED
★ JUL 22 1935 ★
U. S. Department of Agriculture

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., April-June 1935

Nos. 4-6

1885--FIFTIETH ANNIVERSARY NOTES--1935

Work and Workers of the First Twenty Years

By W. C. Henderson, Associate Chief; and Edward A. Preble, Senior
Biologist, Division of Wildlife Research

Fifty years ago, on the 3d of March, 1885, Congress appropriated \$5,000 for the promotion of "economic ornithology, or the study of the interrelation of birds and agriculture, an investigation of the food, habits, and migrations of birds in relation to both insects and plants." The money became available on the first of July following. Upon the recommendation of the American Ornithologists' Union, Dr. C. Hart Merriam, physician and lifelong student of natural history, was appointed head of the new project. He selected as his assistant Dr. A. K. Fisher, also well trained in field zoology and botany, and a graduate in medicine, and these two men, with a secretary, who in 1886 became Mrs. Merriam and was succeeded by Mrs. A. B. Morrison, constituted the entire force of the new organization. It was first established as a branch of the Division of Entomology. The year following the appropriation was doubled and the unit became an independent "Division of Economic Ornithology and Mammalogy." In 1896 the name was changed to "Division of Biological Survey." On March 3, 1905, just twenty years after the date of the first appropriation, the name was changed to the Bureau of Biological Survey.

Gradually, through the years, the little band that started the Survey--the Division of Ornithology and Mammalogy--was enlarged by the enlistment of other naturalists, mainly young men raised in many States from New England to California, who from boyhood had studied the birds and mammals and other wild inhabitants of the woods and fields about their rural homes, and including also a number of older men with extensive field and laboratory experience in various phases of natural-history study. During this period both Merriam and Fisher, for a part of nearly every year, carried on field work, mainly in the Western States or in Alaska, and published widely on their findings.

Merriam's contributions to distributional and systematic literature were especially extensive and important throughout the entire period to his retirement from the service in 1910. Fisher's publications, though less extensive, included a number of important reports. His bulletins on the food habits of hawks and owls, and his defense of these widely persecuted birds, were especially notable, and formed the principal inspiration for many earnest students of the subject. In 1915 he organized the work of controlling predatory animals and injurious rodents and headed the operations for many years. He retired from the service in 1931.

In 1886 Walter B. Barrows, of Michigan; and Foster E. L. Beal of Massachusetts, both with wide experience in economic ornithology, joined the staff. Professor Barrows was in the service only a few years, but in that period prepared an extensive report on the English sparrow (Bulletin No. 1 of the Bureau series, 1889) and one on the crow (Bulletin No. 6, 1895). Following his resignation in 1894, he entered the service of the Michigan Agricultural College, where he continued the study of ornithology and in 1912 published a fine report on the Birds of the State, "Michigan Bird Life", and other notable papers. He died in 1923.

Professor Beal remained with the Bureau until his death in 1917, publishing a large number of important bulletins on economic ornithology, and training several young men who carried on the work after his death. His influence on the study of economic ornithology, and the consequent benefit to the birds, has been enormously important.

Prof. Wells W. Cooke, America's most eminent student of bird migration, first came to the Bureau for a few months in 1886, when he wrote an extensive report on Bird Migration in the Mississippi Valley, published as Bulletin 2, in 1888. He came back in 1901, and continued with the Survey until his death in 1916, preparing a notable series of bulletins on the distribution and migration of a number of groups of North American birds, and several general treatises on bird migration. One of his last publications, Department Bulletin No. 185, "Bird Migration," published 20 years ago, is still being distributed, and the fact that it has been reprinted 9 times, and that more than 8,000 copies have been sold, ranks it as one of the "best sellers" in its class at the Government Printing Office.

Vernon Bailey, who had previously contributed to Dr. Merriam's private mammal collection, joined the Bureau as a field naturalist in 1887. He was born in Michigan, whence his parents had pioneered to southern Minnesota when he was six years old. Brought up in what was then semiwilderness, with wildlife still abundant, he had been from early childhood absorbed in its study, and had improved every opportunity to learn its secrets.

After an experience that has made him more intimately familiar with the wildlife of the West and with its environment than that enjoyed by any other naturalist in America, Mr. Bailey retired from active service in 1933. He is the author of several voluminous reports on the natural history of States, including Texas, New Mexico, and North Dakota, and a large number of smaller areas, as well as several systematic revisions, and is still actively working to complete certain reports that embody some of the further results of his long and unique experience. During June there was transmitted for publication his report on the life zones and mammals of Oregon.

In 1889 a very important study was made of the distribution of life on San Francisco Mountain in Arizona, chiefly by Merriam and Bailey, but enriched by the

services of two other eminent zoologists, the late Frank H. Knowlton, paleobotanist of the Geological Survey and the United States National Museum; and Leonard Stejneger, who is still in active service in the Smithsonian Institution. This was the first exposition of the distribution by zones of the flora and fauna of a high North American mountain.

Theodore S. Palmer, who was instrumental in building up several important activities, and who was assistant chief and acting chief for 15 years, came to the work in 1889. For many years he was especially active in game preservation work, and made the first draft of the treaty with Canada for the protection of migratory birds. North American Fauna No. 23, comprising 984 pages, a list of the genera and families of mammals, published in 1904, and invaluable to anyone attempting to work in systematic mammalogy, is under his authorship. Since his retirement from the Bureau in 1933, Dr. Palmer has devoted himself to certain phases of ornithology and mammalogy of historic, biographic, and bibliographic interest, and to wildlife conservation.

A field expedition that covered a large area in south-central Idaho in 1890 brought to the service Clark P. Streater, already well known for his field work in the West Indies and in British Columbia. He remained in the Bureau for several years, and did important work in various parts of the United States, mainly on the West coast, including British Columbia and southern Alaska. His service terminated in 1896. His specimens, judiciously selected and well prepared, were always as representative as possible of the local fauna.

Basil H. Dutcher, who was first employed temporarily as a field naturalist in 1890, did notable work during a number of summers in Idaho, California, Montana, Wyoming, and several other States, usually accompanying Vernon Bailey. He studied medicine and became an army surgeon, seeing service in many fields, including the Philippines. He died in 1920.

The Death Valley Expedition of 1891 included in its personnel nearly all the men with field experience then in the Bureau, and in addition a few others. Edward W. Nelson, of Arizona, a naturalist with wide experience in the United States and Alaska, who had joined the force the year before, was prominent in the work. Another valuable worker was Frank Stephens, who had then been a resident of California for several years, and is still active in natural-history work there. Dr. Nelson remained in the Bureau until his retirement in 1929, after serving as assistant chief for 2 years and as chief for 11 years (1916-1927).

At the close of the work in the Death Valley region about December 1891, Nelson was detailed to work in Mexico, and on his way through southern California he employed Edward A. Goldman as assistant. They started field explorations on the west coast of Mexico early in 1892 and worked in Middle America almost continuously until about 1906, extending their researches through most of Mexico and Central America south to Panama.

Nelson published widely, both in the Bureau series and in outside media. Besides a large number of minor systematic papers, his output included revisions of several mammal groups, a comprehensive monograph on the natural resources of Lower California, and many important works on regional natural history. (For biographical note on Dr. Nelson, see THE SURVEY, vol. 15, no. 5, pp. 51-53, May 1934.)

Edward A. Goldman, after a number of years work in Mexico with Nelson, made his headquarters in Washington, where he prepared several revisional papers on mammal genera. In 1905 and 1906 he accompanied Nelson on an exploratory trip through Lower California, the work extending over nearly a year. Later, in 1910-1912, Goldman spent many months in a study of the Panama Canal Zone, in cooperation with the Isthmian Canal Commission. He published "Mammals of Panama" in 1920. He has since done much general field work, made extensive studies of the Mexican and Central American collections gathered in earlier years, and is the author of a number of important systematic papers, mainly on mammals.

In the meantime, in the fall of 1891, W. E. Clyde Todd, of Pennsylvania, was appointed as a general assistant. Although only 17 years of age, he already had an extensive field knowledge of the birds of western Pennsylvania. He remained with the Survey until 1899, when he resigned to accept a position with the newly established Carnegie Museum of Pittsburgh. There he continued his work on birds and soon became curator of ornithology, a position he still holds. He has published widely on systematic and regional ornithology, mainly of Central and South America, and has done extensive field work in northeastern Canada.

April 1892 witnessed the addition to the Survey's field force of J. Alden Loring, of New York. Loring was an enthusiastic collector, and during the next few years worked in most of the Western States and the southern part of the central Provinces of Canada. At this period the standard salary for a field man was \$100 a month, from which he had to pay all or nearly all his field expenses. For example, Loring thus financed two expeditions into the Rocky Mountains west of Edmonton, Alberta, the scene of the early labors of David Douglas and Thomas Drummond, by being allowed to spend the winter in Washington, and saving up for the summer's work. Loring left the service in 1897, but was reemployed for special duties on several occasions, notably in 1920, when he spent the summer on the great waterfowl breeding grounds in central Canada.

In April of the same year Russell J. Thompson and George A. Coleman received appointments to do field work, and after a few weeks training (along with Loring) under Vernon Bailey were assigned separate itineraries. Thompson worked in Georgia, Mississippi, Louisiana, and Tennessee during that summer and fall. Coleman began work in Mississippi, and later collected in Louisiana, Kentucky and Nebraska. Neither remained in the service later than 1893.

Edward A. Preble, of Massachusetts, came to the Survey at the same time. His field work has included expeditions in several of the Western States, but has

been carried on principally in north-central and western Canada and in Alaska. On three occasions, in 1900, 1901, and 1903, he was accompanied on field trips to northern Canada by his brother, Alfred E. Preble, now a school teacher in Massachusetts. In 1914, with Wilfred H. Osgood, of the Field Museum, and George H. Parker, of Harvard University, he served on a special commission to study the fur-seal herds on the Provilof Islands, Alaska. The findings were published in an extensive report issued by the Department of Commerce in 1915, and later were touched upon by Preble in North American Fauna No. 46.

Arthur H. Howell came to the Bureau in 1895, serving his apprenticeship in northern Montana with Vernon Bailey. His periodical field service has taken him to many Western States, but his most notable work has been done in the South. He has published on the birds and life zones of Arkansas, on the mammals and life zones of Alabama, and on the life zones and birds of Florida, the last-named work by far the most important one ever published on the avifauna of that State. A large number of monographic revisions of mammal genera and many lesser systematic papers constitute the more important of his numerous publications.

Sylvester D. Judd, a zoologist with several years of field and laboratory experience, was appointed in 1895, and assisted Professor Beal in the study of economic ornithology for several years. He prepared a series of fine papers on the food taken by birds, one of the most notable of which was "Birds of a Maryland Farm" (1902); others dealt with the food of grouse, quail, and turkeys. Dr. Judd died in 1905.

In the same year came Harry C. Oberholser, of Ohio. He has done general field work in many States, notably in the Southwest, and is the author of many systematic and life-history studies of North American and foreign birds. Dr. Oberholser's eminence as an ornithologist has resulted in the Bureau's being requested to identify hundreds of collections of North and Middle American birds.

Gerrit S. Miller, Jr., was a member of the Survey staff for a few months in 1895, when he wrote several important papers on insectivores and rodents. He brought to the Bureau an experience that permitted him to produce a large amount of work in the short time he was with the Survey. He has been assistant curator and curator of mammals of the U. S. National Museum since 1898.

Wilfred H. Osgood and E. C. Starks came to the Bureau in 1897, both from California. Starks was a student of fishes, having studied under David Starr Jordan, and was especially skilled in the technic of cleaning delicate skeletal material, which was his principal occupation while with the Survey. He participated in only one field trip, when he accompanied Merriam and Fisher on the famous Harriman expedition to Alaska in 1899, resigning at its close. Osgood remained with the Survey until 1909, when he resigned to accept a position with the Field Museum at Chicago, where he is now curator of birds and mammals. While with the Survey he worked in many States, mainly in the West, and in the lower Maritime Provinces of Canada, and also led several expeditions to British Columbia, Yukon, and Alaska. He is author of

a number of important faunal reports and monographs and numerous miscellaneous papers, published in the various Bureau and Departmental series between 1900 and 1909.

Henry Oldys was a member of the Survey from 1899 to 1916. His principal work was in game-protection activities. He assisted in the compilation of several bulletins on various phases of conservation, including one on pheasant raising.

James H. Gaut, who had been associated with several of the more active naturalists about Washington, joined the staff of the Survey in 1899. He was an enthusiastic collector, and between 1889 and 1906 worked extensively in Texas, New Mexico, California, and other States. He died a few years later.

In 1902 Ned Hollister, of Wisconsin, and Merritt Cary, of Nebraska, came to the Bureau. Hollister accompanied Osgood to Alaska and Yukon on one or two trips, and also worked independently in British Columbia and southern Alaska and in many of the Western States. Later he had charge of the Bureau's mammal collection, and revised several mammal groups. He resigned at the close of 1909 to join the staff of the Smithsonian Institution, where he served first as assistant curator of the mammal collection, and later as Superintendent of the National Zoological Park. He was the first editor of the Journal of Mammalogy, serving from November 1919 until his death in November 1924, which was the result of an infectious disease contracted while on field duty in central Asia.

Cary participated in field work in many of the Western States and in central and northern Canada. His most important works were a biological survey and list of the mammals of Colorado, published in 1911, and on the life zones of Wyoming, published in 1917. He resigned in 1917 because of ill health, and died not long afterward.

Robert W. Williams came to the Bureau in 1902 from Florida. His work was mainly in connection with game-law administration, to which he brought an experience in law that led later to his filling the position of Solicitor of the Department. He resigned that position in 1929, and then reentered the service of the Survey. He is the author of a number of bulletins on game laws and game-law administration, and of a "History of Bird Protection in Florida," published as a chapter of Howell's "Florida Bird Life."

One of the ablest and most versatile of the naturalists of the Survey is Waldo L. McAtee. He joined the staff in 1903, and was chief assistant to Professor Beal in economic ornithology until 1917, and in charge of the Division of Food Habits Research until 1934. He has published a large number of important bulletins on the food of birds and on food plants of wild fowl. Eminent also in the study of botany and entomology, he has published widely on these subjects as well as on philosophic natural history.

Prof. David E. Lantz, of Kansas, a lifelong naturalist, and a teacher of long experience, came to the Bureau in 1904 and remained in the service until his death in 1918. His principal field of study was economic mammalogy, and he published a large number of bulletins that have been widely distributed.

Henry W. Henshaw, lifelong naturalist and ethnologist, and a member of several important early western exploring expeditions, joined the Bureau in 1905 as administrative assistant to Dr. Merriam. He was assistant chief for some years, and after Dr. Merriam's resignation served as chief from 1910 to 1916. His eminence as an all-round naturalist and his long experience in the West were of signal assistance in administrative matters. After his retirement he served in a consultant capacity for a period, and remained interested in the fortunes of the Bureau up to the time of his death in 1930. (For biographical note, see THE SURVEY, vol. 11, no. 8, pp. 93-94, Aug. 1930.)

During the early years the appropriations were small and the personnel limited in numbers, but the outstanding interest of the members of the staff and their devotion to duty enabled them to make noteworthy advancements in the field of science, and to place the Bureau in the foremost ranks of the world's scientific organizations engaged in wildlife research. They laid the foundation upon which the further development of the Bureau was based, and their labors should never be forgotten.

Published results of the Survey's varied lines of research during this early period were numerous and notable. Besides the many contributions that appeared in the various Departmental series--Technical Bulletins, Farmers' Bulletins, Yearbook Articles, Circulars, and the Journal of Agricultural Research, and in reports issued by other departments, there are three sets of publications, begun in the early days of our activities, that are peculiarly the Bureau's own. The most valuable and enduring are perhaps those of the North American Fauna series. These treat mainly of regional studies in natural history, and of technical monographs of groups of birds and mammals. In the period 1885 to 1905 there were issued 23 numbers of the North American Fauna. The smallest contained 36 pages; the largest, 984 pages; and one, 574 pages.

The other two were the Biological Survey Bulletins and the Circulars, 22 of the former and 48 of the latter having been issued in the period named. The subjects comprised mainly distribution, migration, food habits, and regional studies of birds and mammals; and protective legislation on game birds and mammals, song birds, and fur bearers. Besides these, many articles in less important series were published by the Bureau during the first 20 years of its existence, bringing the total of official publications to considerably more than a hundred.

GENERAL NOTES

Secretary and Chief Address Izaak Waltonians.--Secretary Wallace and Mr. Darling were among the speakers at the Thirteenth Annual Convention of the Izaak Walton League of America, held in Chicago April 11 to 13 and attended by several representatives of the Biological Survey.

Speaking by radio from Washington over the Conservation Day network, the Secretary discussed "The Land Utilization Program as It Affects Wildlife." "As a people we have come at last," he said, "to the place where we begin to realize that a treasure has been slipping from our careless hands--a vital resource comparable in magnitude to any of the other great natural gifts with which our land was endowed." He pointed out that "the conditions which favor wildlife and promote wilderness areas are identical with those that alleviate the effects of drought, provide flood control, prevent soil erosion, and provide for the preservation, of our fertile soil." The land-utilization program, he explained, "is based on the fundamental principle that in the United States there is land enough to meet generously every national need and every requirement of agriculture, industry, and recreation," and he expressed a hope that "it may be found practicable as the land utilization program develops to place under public ownership a number of large tracts of submarginal lands to be administered in future years as wilderness areas."

Declaring at the beginning of his address on "The Future of Migratory Waterfowl" that in dealing with wildlife "we have been going down hill, backwards, with our eyes shut and our mouths full of mealy mouthed resolutions and mush," Mr. Darling made an appeal for unity and action among conservationists. "I propose," he said, "that a national congress of all game conservation associations meet annually, for a week; that all national sportsmen's and conservation organizations hold their conventions in conjunction with that national congress; that it be established as an annual demonstration of conservation strength; that the scattered and fruitless activities be welded into a semblance of unity by this inter-association of all factors in an annual national congress." The Chief told of the problems facing the Bureau in its administration of waterfowl and of the efforts to solve them. Emphasizing that "regulations must be based on facts rather than wishes," he outlined the needs for data on waterfowl populations, the annual increase, and the annual losses from all causes. He discussed enforcement, and in concluding his address said: "The protests and brickbats will come, with equal velocity and numbers, no matter what my associates in the Bureau and I may do about the hunting season, but there is going to be no dodging of the facts. The regulations will be such as to best conserve the future supply of migratory waterfowl and a great national sport. Shoot if you must this old bald head, but spare your country's ducks, he said."

"To put the waterfowl of the North American continent on a secure basis, we must have within the borders of the United States, as part of the great restoration program, approximately 3,000,000 acres of potential nesting area, 1,000,000 acres of intermediate resting and feeding ponds for use during migration, and approximately 1,500,000 acres of wintering range," said J. C. Salyer in discussing "The Problems of Migratory Waterfowl Restoration." "This," he said, "is the goal we hope to achieve in the early 1940's, and which is physically possible of accomplishment with the organization we have set up, providing public interest is staunch enough to sponsor the completion of the program so well under way, providing the duck-stamp income finally produces its anticipated revenue, and providing that we continue to have

the sympathetic interest and support of the new emergency programs of the Nation." In the early parts of his paper Mr. Salyer discussed the waterfowl crisis, the need of restoration, and the problems dealt with in the restoration program. Summarizing the accomplishments of the program, he said: "To date, as of March 31, 1935, we have established 27 entirely new migratory waterfowl refuges, with an average acreage of 28,960 acres per refuge, an average land cost of \$200,000 per refuge, and an average construction cost of \$126,914. We have added to the acreage of three old refuges, and have further added acreage and other facilities to five other old refuges to the extent that we have practically rehabilitated these to the needs of migratory waterfowl." Mr. Salyer reported 661,498 acres purchased or under contract on March 31, at a total cost of \$4,946,549—an average of \$7.48 per acre, well under the Bureau's self-imposed limit of \$10 per acre average cost. We still have funds remaining, he said, to enable us to establish from six to eight additional refuges where sorely needed at strategic points in the flyways, embracing approximately 125,000 additional acres to our refuge system. The areas for these last few refuges have been definitely chosen already, and work is being pushed forward with our now well-trained organization.

Frederick C. Lincoln presented to the convention a paper on "Waterfowl Conditions in Mexico" prepared by E. A. and L. J. Goldman, as a result of their current investigations in that country. General environmental conditions for migratory waterfowl in Mexico are excellent, the Goldmans found, but they reported that "everywhere without exception we were told by whites and Indians alike that ducks have very greatly decreased during recent years." After referring to conditions in other parts of the continent, the brothers declared that "the conclusion that the total duck population of the continent has been alarmingly reduced is inescapable." That pintails, lesser scaups, blue-winged teals, widgeons, and a few other species have remained relatively numerous, they observed, is "obviously due to the fact that in Mexico they find comparative, and in much territory absolute, safety after running the gauntlet of the broad transcontinental general danger belt formed by the United States." The Mexican Department of Forestry, Hunting, and Fishing, they reported, has been reorganized with a distinguished forester, Miguel H. de Guevedo, at its head. Plans being formulated include the orderly management and protection of wildlife. The Goldmans urged cooperation between the United States and Mexico.

The Biological Survey representatives at the convention included also H. P. Sheldon, Dr. W. B. Bell, Clarence Cottam, and Dr. Harry C. Oberholser.

Represent Bureau at Mammalogist Meeting.--Mr. Henderson and 8 other members of the Biological Survey represented the Bureau at the Seventeenth Annual Stated Meeting of the American Society of Mammalogists held at the Carnegie Museum in Pittsburgh, Pa., April 30 to May 4. In the absence of Mr. Darling, Mr. Henderson spoke on the topic scheduled to be discussed by the Chief, "Federal Duty Toward Wildlife Conservation." Arthur H. Howell presented an illustrated paper on "Habits and Distribution of the American Arctic Hares," and Dr. H. H. T. Jackson discussed "Some Recent Accomplishments in Mammalogy." Vernon Bailey, outgoing president of the Society, was succeeded by H. E. Anthony, of the American Museum of Natural History. E. A. Preble, of the Survey, was elected a vice president, and Mrs. Viola S. Snyder was reelected treasurer. Members of the Bureau in attendance were Mr. Henderson; Mr. Bailey, Mr. Preble, Dr. Jackson, Mr. Howell, O. J. Murie, Chas.

E. Kellogg, and A. L. Nelson, of the Division of Wildlife Research; and Howard Zahniser, of the Division of Public Relations.

Addresses Pittsburgh Club.--Mr. Darling on April 30 spoke at a banquet of the Lewis and Clark Club of Pittsburgh of the emergency needs for unity in conservation organizations. The Bureau's movie "Why Save the Elk" was also shown.

Chief Makes Inspections in Mid-West.--Leaving Washington on April 5 Mr. Darling made inspections of a number of Bureau projects in the Mid-West, ending his tour by attending the Izaak Walton League convention in Chicago.

In New York.--Mr. Darling spent a few days beginning April 24 in New York City conferring with individuals and organizations interested in conservation. On April 25 he addressed the Union League Club on the restoration program.

In Minnesota.--Mr. Henderson during the last week of March represented the Bureau at hearings held in Deer River, Walker, and St. Paul, Minn., by the Department of War in connection with its administration of reservoir lakes near the headwaters of the Mississippi River. He also conferred with army engineers in St. Paul. Formerly valuable waterfowl areas, these lakes, Mr. Henderson reports, have suffered severely since the drought of 1930. At these hearings the War Department invited suggestions for changes in their regulations for the control of these lakes, which will hasten restoration as soon as increased rainfall makes it possible.

Refuge Administration Transferred.--"Pursuant to the original concept in the establishment of the Division of Migratory Waterfowl," Mr. Darling has directed that "the administration of all refuges and sanctuaries whose primary purpose is for the conservation of migratory birds will be transferred, together with all records, equipment, and funds, to the aforesaid division with the beginning of the new fiscal year, July 1, 1935." The transfer affects all refuge areas under the jurisdiction of the Biological Survey with the exception of the National Bison Range, Mont.; the Elk Refuge, Wyo.; the Charles Sheldon Wildlife Refuge, Nev.; the Sullys Hill National Game Preserve, N. Dak.; and the Wichita National Forest and Game Preserve, Okla. These areas are administered by the Division of Game Management.

To Direct Bureau's CCC Work.--Amos B. Emery has been designated to coordinate and direct the work of CCC camps on refuges administered by the Biological Survey. About 25 camps, it has been proposed by the Bureau, may be assigned to work on areas recently acquired in the migratory waterfowl program and on refuges that have for some years been in need of development.

Land Policy Committee Established.--On March 29 Secretary Wallace established in the Office of the Secretary a Land Policy Committee, to consist of representatives of those agencies within the Department which have responsibilities relating to (a) acquisition of lands for any purpose; (b) administration of public lands under the jurisdiction of the Department; (c) regulations and cooperative arrangements which affect the administration of private lands. The Committee will pass on all projected policies affecting these matters and review existing policies and

working arrangements. It will consist of M. L. Wilson, Assistant Secretary of Agriculture, Chairman, and the heads of the Forest Service, Biological Survey, Soil Erosion Service, Bureau of Chemistry and Soils, Bureau of Agricultural Engineering, Bureau of Plant Industry, Extension Service, Office of Experiment Stations, Bureau of Agricultural Economics, and the Program Planning Division, Agricultural Adjustment Administration. A representative will be added of other agencies that may be set up within the Department or in association with it, which affect land administration or acquisition.

ADMINISTRATION

Agricultural Appropriation Act Approved.--The Department of Agriculture and Farm Credit Administration Appropriation Act, approved May 17, 1935, contains provisions pertaining to the Bureau as follows:

Appropriation	Appropriation fiscal year 1935	Appropriation fiscal year 1936	Increase or decrease
<u>Salaries and expenses:</u>			
Administrative expenses.....	77,659	79,595	+ 1,936
Maintenance of mammal and bird reservations....	¹ 74,021	56,727	- 17,294
Food habits of birds and animals.....	² 56,349	60,640	+ 4,291
Control of predatory animals and injurious rodents.....	² 442,993	600,000	+157,007
Production of fur-bearing animals.....	54,691	56,112	+ 1,421
Biological investigations.....	74,073	118,149	+ 44,076
Protection of migratory birds.....	163,064	222,978	+ 59,914
Enforcement of Alaska game law.....	69,946	96,596	+ 26,650
Upper Mississippi River Wildlife Refuge --			
Administration.....	33,657	34,683	+ 1,026
Bear River Migratory Bird Refuge.....	16,153	16,559	+ 406
Migratory bird conservation refuges.....	65,948	77,510	+ 11,562
<u>Upper Mississippi River Wildlife Refuge--Land Acquisition.....</u>	³ 1,862	³ 1,943	+ 81
Total.....	<u>1,130,416</u>	<u>1,421,492</u>	<u>+291,076</u>
Advances to Migratory Bird Conservation Fund.....	150,000	--	
Migratory Bird Conservation Fund (Special Fund)		⁴ 441,466	

1. Includes \$18,800 transferred from other appropriations for feeding elk.

2. Funds for "investigations of method for control of rodents and predatory animals" accounted for under appropriation "Control of predatory animals and injurious rodents".

3. Unexpended balance of appropriation for fiscal year 1934 also available.

4. Available for 1935 and 1936.

The above figures do not take into account additional revenues from the sale of stamps under the Migratory Bird Hunting Stamp Act for the year commencing July 1, 1935, the proceeds of which will become available for expenditure in accordance with the provisions of the Act. Receipts for the current year have exceeded \$600,000.

Head of Section of Finances and Accounts Appointed.--On May 1, 1935, S. C. Moore was appointed administrative assistant in charge of the Section of Finances and Accounts, to fill the vacancy caused by the death of E. J. Cohnan in November. Mr. Moore, selected because of his experience and training in accounting work, was transferred from the Bureau of Public Roads headquarters in San Francisco, Calif., where he had been employed since September 1931. From that date to May 1, 1934, he had supervision of the Bookkeeping, Auditing, and Voucher Divisions of a district office, and on May 1, 1934, he was advanced to the position of accountant, which he occupied until his transfer to this Bureau. Mr. Moore entered the Government service on September 2, 1922, as a clerk-typist and filled various positions through advancement in grades up to the time of his appointment in the Bureau of Public Roads.

Name Changed in Personnel Records.--It will be of interest to a large number of Biological Survey employees to learn that the Bureau personnel clerk, formerly Pauline M. Brett, is now Mrs. T. Fulton Stretton. The marriage ceremony, which took place on April 20 at the Calvary Methodist Church in Washington, was attended by a number of Bureau employees, including the Chief and Associate Chief.

Wildlife Legislation Clarified and Additional Appropriation Made.--By Act of Congress (Public No. 148) approved by the President on June 15, amendments are made (1) to the Migratory Bird Hunting Stamp Act, whereby any person is authorized to purchase stamps, but a waterfowl hunter must have in possession one that has been validated by writing his signature across its face; (2) to the provisions of the Lacey Act to cover transportation of "any wild animal or bird" by any means; and (3) to the provisions of the Migratory Bird Conservation Act relating to acquisition of lands, to facilitate acquisition and administration; (4) the States are privileged to participate in revenues from certain wildlife refuges within their borders; (5) the President was authorized to allocate funds from the Emergency Act of April 8, 1935, for refuge-acquisition purposes; (6) the Wind Cave National Game Preserve (South Dakota) was transferred to the Department of the Interior, to be administered as part of the national park of the same name; and (7) a direct appropriation of \$6,000,000 was made for refuge-acquisition purposes, to be available until expended. The new act includes other provisions in addition to the major ones above mentioned.

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" series:

- No. 30. Partisan political activity by non-civil service workers prohibited. (Inadvertently undated; issued April 10.)
- No. 31. Procedure in renewal of leases and less formal rental agreements, including telephone contracts. (April 17.)

- No. 32. Restriction on employment in the Federal Service of more than one member of a family (amending memorandum A. F. O. No. 29). (April 18.)
- No. 33. Government bills of lading. (April 19.)
- No. 34. Navy oil contracts. (May 10.)
- No. 35. Transfer to the Resettlement Administration of field employees engaged in work on the Waterfowl Restoration Program under the working fund entitled "3-OW671.1, Working Fund, Agriculture, Biological Survey (Federal Emergency Relief, Surplus Relief, N.I.R.)". (May 21.)

PUBLIC RELATIONS

To Cooperate in Educational Programs.--- In a recent letter to the Commissioner of Education of the Department of the Interior, Secretary Wallace named a committee to represent the Department in laying plans for educational work in conservation. The committee consists of G. A. Duthie, Forest Service; R. A. Winston, Soil Conservation Service; and Wm. H. Cheesman, editor of the Biological Survey. "These men," said the Secretary, "will be able to call upon subject matter experts of their respective bureaus for such assistance as may be necessary."

80,000 See Bureau Movie in Mississippi.---About 80,000 people in Mississippi have seen the Bureau's motion picture entitled "Our Wildlife Resources" since last November, according to Hunter Kimball, State Director of Conservation, under whose auspices the film is being exhibited. He estimated that the picture would be shown to about 50,000 more during the spring.

Speaks, Shows Film to Church Group.---Speaking on "Bird Banding and Man's Responsibility to Nature," Howard Zahniser told members and guests of the Men's Club of the First Presbyterian Church of Catonsville, Md., at a banquet on April 12, that today's opportunity for conservation is a challenge to the churches. Man, he said, has willingly accepted dominion over the creatures of the wild, but he has been prone to neglect the responsibility that goes along with this dominion. Calling conservation an aspect of righteousness, he pointed out that the potential influence of the churches in this cause is incalculable but powerful. In describing the way in which the Biological Survey discharges the Federal Government's responsibility for the protection of migratory birds he emphasized the importance of bird banding and sketched the history and results of this method of research. Mr. Zahniser's talk was an introduction to the first public showing of the Bureau's new 2-reel film entitled "The How and Why of Bird Banding."

Official Publications and Releases. copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

The crested myna, or Chinese starling, in the Pacific Northwest, by Theo. H. Scheffer, Associate Biologist, and Clarence Cottam, Biologist, in charge, Section of Food Habits, Division of Wildlife Research. Technical Bulletin No. 467, 27 pp., illus., April 1935. Received May 23.

- Quail-food plants of the Southeastern States, by A. C. Martin, Junior Biologist, Section of Food Habits, Division of Wildlife Research. Circular No. 348, 16 pp., illus. April 1935. Received June 10.
- Regulations relating to game, land fur animals, and birds in Alaska, 1935-36. Alaska Game Commission Circular No. 12, 32 pp., illus. April 1935. Received May 24.
- Tularemia, an animal-borne disease, by W. B. Bell, Principal Biologist, Chief, Division of Wildlife Research, and J. E. Shillinger, Senior Veterinarian, In Charge, Section of Disease Control. Mimeographed Leaflet BS-5, 3 pp. April 1935. Received April 30.
- Publications on cage birds. Prepared in Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-6, 9 pp. April 1935. Received April 25.
- Instructions for controlling bats. Prepared in Section of Predator and Rodent Control, Division of Game Management. Mimeographed Leaflet BS-7, 1 p. April 1935. Received April 27.
- Publications on attracting birds. Prepared in the Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-8, 4 pp. April 1935. Received May 10.
- Infectious diseases as a cause of loss in wildlife, by J. E. Shillinger, Senior Veterinarian, in charge, Disease Control, Division of Wildlife Research. Mimeographed Leaflet BS-9, 4 pp. May 1935. Received May 28.
- The possibility of secondary poisoning from thallium used in the control of rodents, by F. E. Garlough, Director, Control Methods Research Laboratory, Section of Predator and Rodent Control, Division of Game Management. Mimeographed Leaflet BS-10, 2 pp. May 1935. Received June 14.
- Birds aid blueberry and cranberry growers, by Phoebe Knappen, Junior Biologist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-11, 4 pp. June 1935. Received June 20.
- First nesting place is "home" to migrant birds, says Lincoln. Press statement 1850-35. Released March 30.
- Issue new regulations on game and fur animals in Alaska. Press statement 1866-35. Released April 1.
- Supreme Court upholds U. S. rights to Lake Malheur Bird Refuge. Press statement 1958-35. Released April 15.
- Special privileges in wildfowling considered unwise by U. S. bureau. Press statement 1994-35. Released April 19.
- Wildlife bureau will discontinue breeders' permits to trap ducks; wild breeding stock is too low to justify risking any part of it, says Biological Survey. Press statement 1995-35. Released April 19.
- Seek ways to provide for Jackson Hole elk. Press statement 2066-35. Released April 30.
- Killers and sellers of ducks feel judge's heavy hand. Press statement 2075-35. Released May 1.
- Hatch control to protect local birds from gulls. Press statement 2078-35. Released May 2.
- Stamp collectors can still buy duck stamps. Press statement 2178-35. Released May 17.

Duck-stamp dollars put to work on Minnesota wild-fowl refuge. Press statement 2184-35. Released May 18.

Burrowing sea birds get Goat Island away from sheep. Press statement 2194-35. Released May 21.

Duck stamps can be sold to anyone under new law. Press statement 2326-35. Released June 17.

State schools will teach game management methods. Press statement 2334-35. Released June 19.

Nearly six million hunters. Clip sheet No. 873. Released March 24.

Rodents. Clip sheet No. 880. Released May 12.

Last caribou in U. S. hold on in Minnesota. Clip sheet No. 881. Released May 19.

Errant fox teaches rancher a lesson. Clip sheet No. 882. Released May 26.

Gulls pick cherries--in their own fashion. Clip sheet No. 884. Released June 9.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, S. E. Some breeding notes on rodents. Jour. Mammal. 16: 129-131, May 1935.

Burleigh, T. D. The pine-woods sparrow a breeding bird in South Carolina. Auk 52: 194. Apr. 1935.

-----Two new birds from the southern Appalachians. Biol. Soc. Wash. Proc. 48: 61-62. May 3, 1935.

-----Wildlife and forest management. Penn State Forestry Annual 1: 11-14. Apr. 1935.

Cheesman, Wm. H. Bureau of Biological Survey. Americana Annual 1935: 97-100. 1935.

Cottam, Clarence. Late migration of tree swallows and mourning doves. Auk 52: 189. Apr. 1935.

-----The eelgrass situation in 1934. Twenty-first Amer. Game Conf. Trans. 21: 295-301. May 1935.

-----Unusual food habits of California and ring-billed gulls. Condor 37: 170-171. May 1935.

Darling, J. N. Are game hogs necessary? Natl. Waltonian 2 (9): 6-7, illus. Mar. 1935.

-----Wildlife management and the extension worker. Ext. Serv. Rev. 6 (3): 21-22, illus. Mar. 1935.

-----Our migratory waterfowl--an inventory. Bird-Lore 37: 155-159, illus. May/June 1935.

Day, A. M. Why coyotes are a menace. Outdoor Life 75: 26-27, 90, illus. May 1935.

Goldman, E. A. Edward William Nelson--Naturalist. Auk 52: 135-148. illus. Apr. 1935.

Howell, A. H. The harvest mice of the San Luis Valley, Colorado. Jour. Mammal. 16: 143-144. May 15, 1935.

Jewett, S. G. The season (ornithological): Portland (Oreg.) region. Bird-Lore 37: 146-147. Mar./Apr. 1935.

-----The season (ornithological): Portland (Oreg.) region. Bird-Lore 37: 230. May/June 1935.

- Kelso, Leon. Bird notes from Fall River, Larimer County, Colorado. Oologist 52: 14-19. Feb. 1935.
- Lincoln, F. C. Ancestral highways of the sky. Amer. Forests 41: 157-159, 196, illus. Apr. 1935.
- McAtee, W. L. Food of the barred ground dove. (Food and feeding habits of the barred ground dove, by Canuto G. Manuel, Phil. Jour. Sci. 55 (1): 69-77, illus., Sept. 1934.) (Review.) Auk 52: 213-214. Apr. 1935.
- Foreword on fish-eating birds. Emer. Cons. Com. Teaching Unit 4: 1-4. May 1935.
- Mills, E. M. Municipal rat control. Extermin. Log 3 (4): 13-14. Apr. 1934.
- Munch, J. C., and Garlough, F. E. Antidotes, I: General plan. Jour. Amer. Pharm. Assoc. 24: 38-39. Jan. 1935.
- Murie, O. J. The elk of Jackson Hole. Nat. Hist. 25: 237-247, illus. Mar. 1935.
- Oberholser, H. C. The season (ornithological): Washington (D.C.) region. Bird-Lore 37: 139-140. Mar./Apr. 1935.
- The season (ornithological): Washington (D.C.) region. Bird-Lore 37: 223. May/June 1935.
- Preble, E. A. Audubon, the American woodsman. Nature Mag. 25: 161-165, illus. Apr. 1935.
- Waterfowl breeding grounds of Canada, viewed from a continental standpoint. Amer. Game 24: 20, 26, 27, illus. Mar./Apr. 1935.
- Roahen, K. F. The effect of poisons used in rodent control on grouse, pheasants, and quail. Billings (Mont.) Gazette 47 (189): 10. May 12, 1935. (Also Great Falls (Mont.) Tribune, May 8, 1935.)
- Shillinger, J. E. (With R. G. Green, Univ. of Minnesota, senior author) Minnesota wildlife disease investigation. Minn. Dept. of Cons., Vol. 1, July 1933--Dec. 1934, pp. [71] + 100. Mimeographed. 1935.
- Uhler, F. M., and Cottam, Clarence. Mosquito control and its effects on aquatic wildlife. Twenty-first Amer. Game Conf. Trans. 21: 291-294, illus. May 1935.

WILDLIFE RESEARCH

Biological Survey Consultant Advises State.--The program report of the South Dakota State Planning Board contains the following statement: "Mr. C. M. Aldous, Assistant Biologist of the Lake States Region, who was assigned to the State Planning Board, and O. H. Johnson, State Director of Game and Fish, have made a survey of proposed game refuges in South Dakota. The suggestions of Mr. Aldous as developed in cooperation with Mr. Johnson, are that 'there be set aside through the submarginal land purchase program 18 areas which have been recommended as refuges for particular kinds of game'. Mr. Aldous and Mr. Johnson recommend that the lands purchased be administered by the Department of Game and Fish, and that 'as early as possible, after the acquiring of such tracts as meet with the approval of the Regional Director of the land program, a biologist from the Biological Survey be appointed to spend as much time as is necessary, to cooperate in conjunction with the Department of Game and Fish in working out a wildlife development program for those tracts'".

Complete Study of Wichita Preserve.--Dr. Walter P. Taylor and H. H. Hoyt completed the preliminary study of conditions on the Wichita National Forest and

Game Preserve during the month of March and submitted a report containing much valuable information and recommendations regarding future research, recreational, and administrative plans.

Game Survey of Superior National Forest Made.--O. J. Murie, H. H. Hoyt, and C. M. Aldous have completed field studies as a basis for wildlife-management plans for the Superior National Forest. Preparatory to the field study Mr. Hoyt and Mr. Aldous inspected aerial and cover type maps and other data available at the office of the forest supervisor at Duluth, Minn.

Reports for Conference on Elk.--O. J. Murie was in Washington in April for conferences regarding conditions affecting the elk in the Jackson Hole region.

Musk Oxen Make Improvement.--A report from Charles H. Rouse covering activities at the wildlife research station at College, Alaska, states that the young musk oxen born in 1934 have been increasing in weight at the rate of approximately 11.65 pounds per month over a period of four months; that these animals are in excellent condition; and that their average weight is 65 pounds greater than that of animals of corresponding age at the time they were originally brought from Greenland.

Surveys C. C. C. Camps.--Ira N. Gabrielson in April in company with Lawrence S. Gross of the Forest Service made a general study of the operation of CCC Camps on national forests in the Middle Atlantic and New England States. Mr. Gabrielson also obtained information regarding conditions affecting wildlife for use in developing a research program in cooperation with the Forest Service.

Reports Success of Lecture Tour.--Dr. Harry C. Oberholser, who returned on April 17 from a 3-month's tour for the Bureau in the Middle West, reports that during the trip he made 86 talks, chiefly on waterfowl, the waterfowl situation, and the work of the Biological Survey. The States visited were Ohio, Indiana, Illinois, Michigan, Wisconsin, North Dakota, Minnesota, Missouri, Iowa, Nebraska, Tennessee, Arkansas, Mississippi, Louisiana, Texas, and Oklahoma. The talks were given under the auspices of the Izaak Walton League, various local sportsmen's and conservation organizations, nature study clubs, universities, colleges, high schools, and grammar schools, and various other groups and organizations, including the Federated Garden Clubs of Louisiana. The widespread interest in waterfowl, says Dr. Oberholser, is evidenced by the fact that in many places persons drove 60 to 100 miles to attend the meetings. This interest was likewise manifested in the large number of questions that were asked after the meetings, in some cases extending over a period of several hours and resulting in personal interviews with about 1,000 persons. One of the outstanding results of this unique lecture trip was the demonstration that this method of spreading information regarding wildlife and wildlife conservation is one of the most practical means for carrying on this activity of the Bureau.

Dog at Ease in Humane Trap.--Vernon Bailey, retired chief field naturalist, who still serves the Bureau at his desk in Washington, has recently been exhibiting a photograph that shows a collie dog at ease in one of the humane foothold traps he

has designed. The dog, he reports, was captured on a game farm about 50 miles west of Richmond, Va., on April 22 in one of several traps set in an experiment to test the device's effectiveness in capturing foxes. Though the results of the test indicated some faults in the fox traps that are now being corrected, Mr. Bailey was delighted when he found how comfortably the dog was held by the trap. "Perfectly at ease, and the picture shows it," was Mr. Bailey's comment.

Mammal Research

New Section Established.--Mr. Darling recently announced the establishment of a Section of Mammalogy in the Division of Wildlife Research. Dr. H. H. T. Jackson heads the new section.

Tells University Women of Bird Travels.--A. H. Howell on May 12 gave an address, illustrated with lantern slides, before the American Association of University Women in Washington, D. C. Mr. Howell's subject was "The Travels of Birds".

Distribution and Migration of Birds

Addresses Rivers and Harbors Congress.--Substituting for Mr. Darling, F. C. Lincoln addressed the 30th Annual National Rivers and Harbors Congress at the Mayflower Hotel, Washington, D. C., on May 2, on the subject of oil pollution. After first describing the interest of the Biological Survey in this matter and the effect of oil and oily waste upon water birds, Mr. Lincoln reviewed the work of the Interdepartmental Committee on Oil Pollution and existing legislation designed to curb this nuisance. As a means of illustrating the effect of oil upon ducks and other birds, an oiled specimen of a lesser scaup duck was exhibited.

A resolution was introduced in the congress calling for an amendment to section 13 of the Act of March 3, 1899, and the Oil Pollution Act of June 7, 1924, the intent being to extend Federal authority to land sources of oil pollution and to control such pollution on navigable streams and their tributaries.

Broadcasts.--On May 28 Mr. Lincoln gave an address over WMAL's Girl Scout Program on the subject "Something about Birdbanding."

Canada Goose Recoveries from St. Mark's Refuge.--The wintering of large numbers of Canada geese on the St. Mark's Migratory Bird Refuge in Florida, has been somewhat surprising, since on the Atlantic coast these birds are never common south of North Carolina. Banding operations conducted in spring at the refuge have disclosed that these birds are members of the Mississippi Flyway group. Of 8 returns now available (18 percent of those banded), 3 were recovered in Illinois, and 1 in Wisconsin; 3 of the remaining 4 were recaptured the following season in Florida, 1 being retrapped at the banding station; the eighth bird was killed nearly a year after banding in Kent County, Md., evidently having become associated on the nesting grounds with Atlantic Flyway birds and joining them in migration.

90,000 Cards Added to Geographic Distribution Files.--The accumulation of data pertaining to the distribution and migration of birds over the last two-year period,

numbering 90,000 cards, has been recently distributed by species and placed in the files. In addition, "locality cards" to the number of 2,340 and "bibliographic cards" to the number of 2,021 have been filed.

Banded Pintails Shipped to Hawaii.--Word has been received that 50 banded pintails, shipped to Molokai, Hawaii, by a Bureau cooperator in San Francisco, Calif., have arrived safely with only a few casualties. The birds were sent for research purposes, to be released without pinioning or wing-clipping, and it is hoped that some interesting results will be obtained.

Another Bird Band Serves to Identify Lost Keys.--Since the last issue of The Survey another key ring containing a number of keys and band No. A648061 was sent to this office from Detroit, Mich. Records showed that the band was issued to a cooperator in Blaney, Mich., who placed it on a black duck August 26, 1929, and that the duck was shot on November 12, 1932, at Bayport, Mich., by Ralph Larson, of Detroit. On communication with Mr. Larson it was learned that the keys were his, and they were accordingly returned.

Second Record of Dickcissel in the Ottawa District.--On August 26, 1934, Dr. Ralph E. De Lury, of Ottawa, Ontario, banded a dickcissel, which proves to be the second record for that district, the first having been seen at the Experimental Farm in Ottawa in 1895 by Prof. W. E. Saunders.

Visitors Working with Survey Files.--Mr. and Mrs. George A. Ammann, who are doing post-graduate work at the University of Michigan, have spent several days this spring working with files on the distribution and migration of the yellow-headed blackbird. Frank J. Hinds, also of the University of Michigan, has visited the office to examine banding and distribution records of the cedar waxwing.

Specializing in the Banding of Purple Finches.--M. J. Magee of Sault Ste. Marie, Mich., reports that on March 30, 1935, he banded his 16,000th purple finch. He has printed a number of interesting papers on his studies with the plumage of this species.

Waterfowl Survey of Delaware River Marshes.--On March 20 F. C. Lincoln, accompanied by James K. Davis, of Paoli, Pa., made a survey of the waterfowl marshes of the Delaware River in the vicinity of Salem, N. J. About 25,000 ducks were seen, of which pintails were the most abundant. No diving ducks of any kind were observed. Information obtained indicates that Delaware Bay is the Atlantic coast terminus for the migration routes from the interior used by shoal-water ducks, and that diving ducks reach the Atlantic coast farther south, on Chesapeake Bay.

Spring Waterfowl Reports Arriving in Large Numbers.--Returns from waterfowl observations covering the spring migration have come in in large numbers. These will make a valuable supplement to the surveys made during the past fall and winter.

Duck Stamp Data Useful in Estimating Waterfowl Population.--As soon as the data from the duck stamps are compiled, a reasonably accurate estimate of waterfowl

population may be worked out, using the formula already developed, which has as its basis the relation between the number of banded ducks and first-season returns.

Interesting Banding Returns Received.--F. J. Keller, of Antioch, Nebr., has reported the return for the eighth consecutive year of the famous mallard that carries bands 555414 and A604109. This duck was originally banded on November 29, 1927, and has returned to Mr. Keller's station to nest every year since. The date of return this year was March 3. Other interesting returns include the following: A mallard banded October 31, 1929, at Big Suamico, Wis., was trapped and released October 21, 1934, at Ladner, British Columbia; a starling banded March 17, 1934, at Columbus, Ohio, was found dead about February 15, 1935, at Montpelier, Vt.; an evening grosbeak, banded May 5, 1929, at Ah-Gwah-Ching, Minn., was trapped and released March 22, 1935, at Winnipeg, Manitoba; a black-throated green warbler, banded September 16, 1930, at Hanover, N. H., was found dead February 25, 1935, at Milledgeville, Ga.; a blue goose, banded at Avery Island, La., November 12, 1933, was shot in October 1934 on Ship Sand Island, mouth of the Moose River, James Bay, Ontario; a long-eared owl banded at Rosebud, Alberta, July 4, 1933, was shot February 2, 1935, at Layton, Utah; a meadowlark, banded June 14, 1926, at Ridley Park, Pa., was shot February 16, 1935, at Beaufort, N. C., showing the bird to be at least 9 years old; a yellow-headed blackbird, banded June 7, 1932, at Great Falls, Mont., was recovered March 1, 1935, at Camargo, Coahuila, Mexico.

Sees 9 California Condors.--Joseph Keyes recently reported seeing nine California condors near Delano, Kern County, Calif., on April 9, and on April 26 he saw three birds at one time. In addition to identifying nine positively, he observed three or four other large birds in the air, which he says were probably also of this species. This area lies 75 or 80 miles from the Cuyama Peaks, where the birds are known to nest.

Food Habits

Piper Retires after 31 Years Service.--On May 31 Stanley Edward Piper, associate biologist, working on the relation of native and introduced birds and other animals to agriculture, was retired under the provisions of the Economy Act, after 31 years and 5 months of service. After being graduated from the State College of Washington, he remained there two years as museum assistant in bacteriological work, doing graduate work at the same time. His connection with the Bureau as an assistant biological expert began on January 1, 1904. During his long service Mr. Piper has made valuable studies of the economic relations of birds and mammals and of methods for control of injurious species. In the course of his recent work on the relation of native birds to agriculture, in California, he has devised and utilized many methods that have brought much commendation to himself and to the Bureau for the successful combating of such birds as the horned lark and linnet where they are doing damage. Mr. Piper has written a number of articles on rodent-control methods in North Dakota and the Southwest, among them Farmers' Bulletin No. 352, on "The Nevada mouse plague of 1907-8", and an article in the 1908 Yearbook of the Department on "Mouse plagues, their control and prevention." More recently he wrote a comprehensive report which was published (1928) in the Monthly Bulletin

of the California Department of Agriculture, on "The mouse infestation of Buena Vista Lake Basin, Kern County, California, September 1926 to February 1927."

Mosquito-Control Problem Studied.--Clarence Cottam late in April attended a mosquito convention in New York and inspected mosquito-drainage projects in an effort to help outline methods of procedure that will be less detrimental to wild-life habitats. During this trip he also inspected waterfowl-breeding areas on Long Island. Early in May in company with Ira N. Gabrielson, Mr. Cottam inspected mosquito control areas in New York and New Jersey. They observed drainage areas on Long Island and in Cape May County, N. J., that had been drained for 10 years or more. While on Long Island they also inspected an upland-game-amangement area at Camp Upton. On May 12, Mr. Cottam left Washington to inspect mosquito-control areas on Roanoke Island, N. C., and to survey waterfowl areas in coastal Virginia. En route to Roanoke, he was subpoenaed as a witness in Federal court hearings in Norfolk where migratory-bird-law violators were being tried. Early in May Neil Hotchkiss also surveyed Maryland and Delaware marsh vegetation in relation to mosquito-control operations.

In an attempt to help work out means of mosquito control that would be least detrimental to bird and muskrat habitats Messrs. Cottam and Uhler spent May 22 and 23 surveying proposed projects on the Eastern Shore of Maryland, in company with representatives of the Bureau of Entomology and Dr. E. N. Cory, of the Extension Service, University of Maryland, in charge of mosquito-control work for the State.

Late in March Messrs. Kubichek and Cottam with Mr. Ashbrook left Washington to confer with members of the Delaware State Senate at Dover in regard to the effects of mosquito control in relation to wildlife. Complaints had been received that a Bureau representative had used influence to defeat certain State appropriations. Investigation disclosed that these reports were entirely unfounded. After the conference, inspection was made of the Prime Hook Marshes, which are shortly to be drained. Suggestions were offered to help save desirable habitats for waterfowl, marsh birds, and muskrats and at the same time afford adequate control of mosquitoes. The State Mosquito Commission had expressed a desire to cooperate fully with the Survey in an attempt to save wildlife. In some instances they were impounding water instead of draining, and in other areas gates and dams were being built in to control water levels. It was felt that wildlife conditions in a number of these areas might be improved.

Make Bird Census.--On May 11, Messrs. Gabrielson, Uhler, and Cottam observed 101 species, including several rather uncommon there, in a bird census at Port Tobacco, Md., to determine the abundance of the species in comparison with that 10 years ago.

Looks Into Flicker Complaints.--C. C. Sperry spent two days in May investigating complaints against flickers in the vicinity of Denver, Colo. The birds were charged with damaging the cornices of a number of buildings and being a nuisance as noise-makers.

Confer on Control.--On May 17, Johnson A. Neff, stationed at Sacramento, Calif., attended a symposium at Sonora, Calif., on the relation of wildlife to rodent, predator, and bird control. Representatives of the University of California

Agricultural College, the State Game Department and State Department of Agriculture, the Izaak Walton League, and the Biological Survey participated.

Returns to D. C.--A. C. Martin returned to Washington on June 17 after spending more than four months in the Rocky Mountain States inspecting proposed refuge areas.

Sea Food Conditions in Currituck.--Mr. Cottam, with W. L. McAtee, left Washington on June 15 to inspect waterfowl food conditions in Currituck Sound and Back Bay, and to represent the Bureau at a public hearing in Norfolk on June 21 on removal of the locks on the Albemarle-Chesapeake Canal. Mr. Cottam also inspected eelgrass areas on tidal waters of North Carolina, Virginia, and Maryland.

Starts Summer Field Work.--Neil Hotchkiss left Washington on May 20 to inspect proposed refuge areas in Delaware, New Jersey, New York, and New England. While in New York, he inspected mosquito-control areas and made a plant survey of sites that have recently been drained. It is hoped to make further check of these same plots at later dates to record changes in the flora as a result of control operations. After July 1, with Charles Brackett, Division of Game Management, Mr. Hotchkiss will investigate conditions in Nova Scotia and New Brunswick.

Inspects Waterfowl Areas.--Theo. H. Scheffer spent the first week of May in the eastern part of the State of Washington in company with A. C. Martin inspecting proposed waterfowl-refuge areas. At the close of this work he spent three days at Pullman in cooperative experiments with the Department of Zoology, Washington State College, studying breeding habits of some of the smaller ground squirrels. From May 16 to 18 he spent in Friday Harbor investigating proposed waterfowl-refuge areas.

Early in April Mr. Scheffer had returned to Puyallup, Wash., from Vancouver and Victoria, British Columbia. At Victoria he delivered two lectures for the Provincial Museum, one on the mammals of the Pacific Northwest and the other on the fur animals of the same region. At Vancouver he gathered recent data on the status of the introduced crested myna. During the last half of the month, he assisted A. C. Martin in a survey of proposed waterfowl refuge areas.

Studies Crow Control in Waterfowl Breeding Areas.--E. R. Kalmbach and C. S. Williams left Denver, Colo., on May 5 for the Bear River Marshes, Utah, en route to Edmonton, Canada, where they are carrying on waterfowl studies and crow-control experiments. Mr. Kalmbach reports that crows in Alberta are doing considerable damage to nesting waterfowl. While at the Bear River Marshes, Mr. Kalmbach outlined some experimental work on waterfowl. On April 26, in company with Dr. J. E. Shillinger and F. D. McKenney, Mr. Kalmbach visited officials of the Colorado Agricultural College at Fort Collins and on April 29 spoke on botulism in wild birds before a college veterinary class, illustrating his talk with motion pictures.

Studies Relationship of Foxes to Upland Game Birds.--A. L. Nelson early in May began an intensive study of the effects of foxes and other predators on nesting grouse and quail in Virginia. The studies included work in the mountainous section near Luray, where Mr. Nelson had a series of grouse nests under observation.

Prepare for Control of Water-Caltrop.--F. M. Uhler reports that cooperative control work on the water caltrop (Trapa natans), a Eurasian aquatic plant, which is rapidly becoming a menace to wild-duck feeding grounds on the tidal Potomac, is well under way. Boats have been constructed for the work under the direction of the National Capitol Parks and Planning Commission, and arrangements have been made for the purchase of other equipment and for the services of 30 men from two nearby CCC camps. Experiments in chemical methods of controlling the water caltrop and other undesirable aquatic and marsh plants will also be conducted along the Potomac and on the Blackwater Migratory Bird Refuge, in Maryland.

Visits Game Management Projects.--J. Paul Miller, of the Pillsbury Reservation, N. H., recently inspected proposed game-management projects for the purpose of outlining methods of improvement, at the request of the State of Massachusetts and the U. S. Forest Service.

Examines New Jersey Areas.--W. F. Kubichek, between April 11 and 16 examined two waterfowl areas, one in the northern part of New Jersey and one in the southern. The first was harboring many pairs of black ducks at the time of the investigation, and the second has been regularly frequented by snow geese, during migration. The chief engineer of the Mosquito Commission has indicated that the latter area would not be molested by drainage for at least a year, in which time this Bureau can make the necessary studies and recommendations for its upkeep for waterfowl.

Inspects Drained Marsh Areas.--Neil Hotchkiss, accompanied by Messrs. Emery, Ashbrook, and Kellogg, made an inspection of drained marsh areas in Delaware on April 9. In the afternoon of the same day, they made studies of conditions on the Blackwater Refuge in Maryland and chose a unit that might serve as an experimental plot for ditching in mosquito control. The objective was to determine what effects it will have on muskrats and other wildlife.

Visit Washington Office.--Eugene Surber, of the Bureau of Fisheries, visited the Washington Laboratory on April 1 to obtain information in regard to the planting of aquatic plants; on April 7, F. M. Uhler assisted him in obtaining a number of species from the Potomac River for experimental planting in recently constructed bass ponds at the Leetown (W. Va.) hatchery. Dr. Muenscher of Cornell University visited the Washington Laboratory on April 2 to consult specialists in regard to the control of water caltrop. The Conservation Department of New York is becoming alarmed at the rapid spread of this Eurasian plant in that State.

Concludes Crow Studies.--S. E. Aldous returned to his headquarters at Denver, Colo., on March 19 after spending about a month in Oklahoma observing bombing operations and conducting poisoning experiments against crows.

Studies Magpie Control.--E. R. Kalmbach spent a day late in March conferring with Bureau officials in Wyoming studying magpie depredations and control methods.

CCC Help Continued.--CCC help has been continued on the Pillsbury Reservation in New Hampshire for the purpose of making clearings and doing census work.

Mr. Miller states that the census disclosed the fact that considerable depredations by predators to ruffed grouse occurred during the winter.

Talks to Students.--On March 16, Mr. Miller addressed students at Amherst, Mass., on game management in relation to forestry. On the following day he discussed similar topics with students at the University of New Hampshire at Hillsboro.

Fur Resources

Confers with Rabbit Cooperative.--Chas. E. Kellogg spent May 21 and 22 in the vicinity of Roanoke, Va., visiting various rabbit breeders of the Virginia Rabbit Marketing Cooperative and conferring with members of the Extension Service responsible for this particular organization. Mr. Kellogg gave an illustrated talk on various phases of the rabbit experimental work.

Help in Survey of U. S. Fur Industry.--The Hudson's Bay Company, which has been engaged in the fur business for more than 200 years, is now having a comprehensive survey made of the fur trade of the United States. Its industrial engineer employed for the purpose, in the absence of a central organization in the fur trade from which to obtain statistical data, has turned to the Section of Fur Resources for assistance. Practically all of the section's available information was furnished him during his two conferences in this office. Results thus far have demonstrated that the figures that he has obtained with respect to the turnover in the fur trade in 1929 coincide with the Bureau's figure of about \$500,000,000. In 1933, the turnover was reduced to about \$150,000,000.

New Director for Fur Animal Experiment Station.--Charles F. Bassett, recently appointed Director of the Fur Animal Experiment Station, at Saratoga Springs, N. Y., reported for duty on June 1. He received animal husbandry training at the Iowa State College, Ames, Iowa, graduating in 1917, and also the degree of M. S. A. from the same institution in 1926. Mr. Bassett superintended the experimental work with cattle, hogs, and sheep for the Animal Husbandry Section of the Iowa State College and was responsible for recording the data obtained in this research work. He comes to the Biological Survey highly recommended by his associates. With Mr. Kellogg and Walter G. McBlain, Jr., acting director of the station for the past several months, he has reviewed the current experimental work and has outlined two new mink experiments. Aside from the keeping of feed data and other records these will be the station's first definite experiments on mink production.

Appointed to Study Embryology of Fur Animals.--Dr. G. W. D. Hamlett, formerly in charge of the Department of Zoology at the University of Indiana and now employed in the Department of Anatomy at the Harvard Medical School, has been appointed temporarily to make a critical study of the fur-animal reproductive organs collected at Johns Hopkins University for the past five years. He reported for duty in Baltimore, Md., on May 9 and is working in cooperation with representatives of the Carnegie Institution of Washington in accordance with the cooperative agreement entered into by the Bureau. Dr. Hamlett has made microscopic cross-sections of coyote reproductive organs collected by field representatives of the Division of

Game Management. He reports that the coyote material already collected from the Northern States is adequate but that additional material should be obtained from southern States to find out, if possible, whether two litters are produced in a year. It is planned to make similar studies of foxes and minks if funds permit.

Gives Talk at Alpha Zeta Luncheon.--Frank G. Ashbrook, on April 18 gave an illustrated talk at the Hotel Harrington, Washington, D. C., on the fur resources of the United States at a luncheon of the Alumni Chapter of Alpha Zeta, an honorary agricultural fraternity.

Confers at Universities.--After attending the meeting of the American Society of Mammalogists at Pittsburgh, Pa., Chas. E. Kellogg visited the Pennsylvania State College and Cornell University, to discuss with the various faculty members the work that these institutions are doing or are planning with reference to the fur resources of their States. He also encouraged extension-service club leaders to include rabbit-club projects in their 4-H club programs. Mr. Kellogg had the opportunity of seeing one of the largest flocks of Karakul sheep in the East at Fayetteville, N. Y. After outlining some new experimental work at the U. S. Fur Animal Experiment Station with Mr. McBlain, the acting director, and discussing research work on silver foxes with him and with fur merchants in New York City, Mr. Kellogg returned to the Washington office on May 8.

Reports Items of Interest from Fur Station.--Two interesting occurrences were reported during April at the U. S. Fur Animal Experiment Station. On April 13, marten No. 26 gave birth to a litter of 4 young. This same marten produced a litter of 5 on April 18, 1932, and a litter of 6 on April 15, 1930. It will be recalled that the Section of Fur Resources established a few years ago the gestation period for martens to be 9½ months, contrary to the current opinion that it was from 4 to 5 months. The Fur Animal Experiment Station has never had martens producing young in two successive years. The other point of interest pertains to a litter of fox pups whelped on April 4, the sire of which was a pure-bred standard silver fox and the dam a silver fox with cross-bred ancestors. All the young born were light gray in color, whereas the normal color of silver foxes is black or real dark. Evidently, this particular litter is the result of the combination of certain recessive factors for a light color. Unfortunately, the entire litter died, and there is no way of checking the genetic basis for this off-colored litter. This is the first of its kind to be produced at the station.

Complete Elimination of Raw Meat Not Satisfactory.--Investigations at the Fur Animal Experiment Station during the past two years to find some suitable substitute for raw meat in the feeding of fur animals because of the rapid increase in raw meat prices, show that where packing-house by-products were used entirely to the exclusion of raw meat the vixens did not secrete a sufficient quantity of milk to grow the pups out to as heavy a weight as when raw meat was used in the ration. The study is being continued.

Weekly Weights Made of Young of Minks and Martens.--Five litters aggregating 22 minks and 1 litter of 4 martens have been placed on an individual weekly weighing

schedule until they attain an age of 10 weeks. This is the first time the gathering of such information on martens has been undertaken at the station.

New Machine for Marking Fur Pelts.--An efficient labor-saving device has been acquired recently by the Section of Fur Resources to punch letters and numbers in raw and dressed fur skins. This work formerly was done by hand and with an ordinary needle, a tedious, slow process. The new machine can mark from 40 to 50 pelts an hour, depending on the type of skin and the skill of the operator. The large number of rabbit, muskrat, Persian-lamb, fox, mink, and other experimental furs can now be marked and recorded with ease, and the marking is permanent even though done before the skins are dressed and dyed. This greatly facilitates keeping correct records on experimental skins, for their identity is never lost.

Additional Furs Included in Storage Experiment.--Twenty rabbit skins, dressed and dyed various colors, 4 muskrat (Hudson seal), 8 Russian squirrel, and 3 Persian lamb skins have been marked for identification and cut into halves, thirds, and quarters, and, together with various samples of linings used in fur garments, have been placed in cold storage. Others have been fumigated, and some are being cared for by the old chest and moth-ball method. This experiment is to determine the relative value of the storage methods being tested and their effects on furs and linings in storage. In progress now for more than 2 years, it is a cooperative undertaking with local fur-storage concerns and the Bureau of Entomology.

Crop of New Persian Lamb Skins Received.--The skins of 34 Persian lambs, taken in April and stretched and dried at Beltsville, Md., were forwarded by the Bureau of Animal Industry to the Section of Fur Resources for grading and valuation. The collection is composed of 9 pure-bred Karakul, 12 Karakul and Blackface Highland crosses, and 13 Karakul and Corriedale crosses, all of which were machine marked and placed in cold storage until they can be graded for size, type, color, sheen, and curl. They will then be taken to New York, where expert furriers will grade and value them, after which they will be dressed and dyed and again regraded and revalued. This cooperative study with the Bureau of Animal Industry and the Bureau of Home Economics will not only assist the Animal Husbandry Division in improving their herd of Karakuls at Beltsville, but will furnish breeders of Karakul sheep important information in breeding and developing sheep that produce the kind of skins required by the fur trade.

Inspects Wisconsin's Game and Fur Farm.--Twenty-five miles northeast of Madison, near the town of Poynette, Wis., the Conservation Department of Wisconsin has established a 145-acre game and fur-animal farm. Mr. Ashbrook recently visited this farm in company with Dr. Earl Graves, who is concerned with the health of the wildlife and the sanitation of the farm. The primary purpose of the farm is not for research but to conduct demonstrations and carry on extension work. The fur animals include red, cross, silver, and blue foxes, raccoons, fishers, fitches, nutrias, cub bears, and Karakul sheep.

Visiting Universities.--En route to the United States Rabbit Experiment Station, at Fontana, Calif., Mr. Ashbrook stopped at Ann Arbor, Mich., on May 21

to confer with members of the staff of the University of Michigan on research problems relative to fur animals and the status of wildlife in general in Michigan. On May 22 and 23, he stopped in Madison, Wis., and conferred with University of Wisconsin faculty members on fur resources, and more particularly on fur-farming developments in the State, which now produces annually about 80,000 silver-fox pelts. Prof. Aldo Leopold told Mr. Ashbrook that on many areas in the State the most important species to be considered are fur animals.

Lectures to Students.--Mr. Ashbrook on May 23 in a lecture to 30 students pursuing a course in fur farming at the University of Wisconsin stressed the importance of fur as a natural resource and the relation of fur farming to wildlife conservation, and discussed matters knowledge of which is essential for those concerned with fur-animal production and management.

Feeding Tests Encouraging.--George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif., reports satisfactory results in preliminary trials with the self-feeder developed at the station. One lot of 4-months'-old does were so well developed that they had all the appearances of does 6½ to 8 months of age fed by the regular method. The further this selective self-feeding study is projected the more interesting it becomes, says Mr. Templeton. A constantly increasing number of rabbit raisers in southern California are visiting the Station to discuss their various production problems with the director and also to keep informed with reference to experimental work in progress.

Addresses Pomona Group.--Mr. Templeton discussed rabbit-production problems on April 23 for the Pomona Valley Rabbit Breeders Association at Pomona, Calif. This organization, one of the oldest in the State, includes a great many breeders who depend for their living very largely on the returns from their rabbitries and have stressed the importance of selecting and developing strains for heavier production.

Rabbit Breeders More Optimistic.--Mr. Templeton has been making a special effort to visit as many rabbit farms as possible in California to inform the breeders of the work of the station and to keep himself posted on their problems. Recently he traveled to the Bakersfield area and visited several rabbitries where from 35 to 350 breeding does were kept. In this section the fryer rabbits produced were being sold for 14 cents a pound and the majority of breeders seemed well satisfied with the prices.

Officials of Secretary's Office Visit Rabbit Experiment Station.--C. B. Baldwin, Assistant to the Secretary, and F. P. Bartlett, Assistant to the Under Secretary of Agriculture, visited the Rabbit Experiment Station on March 9, in the course of a trip of inspection of the Department's field stations in Louisiana, Texas, Arizona, and California.

Tells of Future in Rabbit Raising.--Mr. Templeton told members of the Fontana (Calif.) chamber of commerce on April 8 that rabbit breeders have a bright future in meat production. Discussing the meat consumption of the American public,

he pointed out the possibilities for producers of rabbit meat. He estimated that the 10 southern counties of California consumed 1,300,000 pounds of rabbit meat last year, but he said that in view of the quality, nutritional value, and economy of this product, we must conclude that the industry has rendered a poor account of itself in acquainting the public with its product.

Fur Station Fox Makes Round-trip Excursion.--After spending two days and nights on a round-trip excursion to the haunts of nature, a male ranch-raised Alaskan silver fox that escaped from the U. S. Fur Animal Experiment Station, near Saratoga Springs, N. Y., on March 20 returned on March 22 and was captured in a trap where it apparently sought refuge from dogs and hunger. While the animal was at large the local game warden used his influence to protect it from hunters, and tracks in the snow indicated that the fox, though ranch raised, had used the wiles of the wild red fox to foil dogs. The fox had chewed or broken through the 16-gauge, 2-inch netting of both pen and guard fence, indicating to station officials that this wire, though formerly considered satisfactory, is not strong enough or of a mesh small enough to keep strong male foxes in confinement. Precautions are accordingly being taken to avoid other escapes.

Self Feeder Perfected.--Geo. S. Templeton, director, U. S. Rabbit Experiment Station, Fontana, Calif., has on reserve 150 junior does and a few bucks that are being developed for inclusion in experimental work when they reach the breeding age. So many new problems are constantly presenting themselves in the self-feeder studies that Mr. Templeton has taken 50 of these young animals for collecting information relative to these problems. The individual feeding records will be useful in developing a feeding standard for breeding animals. A simple inexpensive self-feeder has been devised for this work by nailing to a 2 by 4 a series of No. 1 cans reduced to such a height that they will hold half a pound of feed. In this particular work a check is being made on the suitability of pelleted peanut meal as compared with pelleted cotton-seed meal as a protein supplement for rabbits. A study is also being made of various cereal grains. It appears that rabbits, like human beings, seem to like best that which costs most--in this particular section oats, which are comparatively high. Mr. Templeton is also checking the advisability of including iron phyro-phosphate in the drinking water.

Addresses Breeders Association.--Mr. Templeton discussed the feeding of rabbits for fryer production at the regular meeting of the Long Beach Rabbit Association on May 6. This phase of rabbit production is of tremendous importance to the commercial rabbit growers in southern California.

Disease Control

Inspects Research Project.--Dr. J. E. Shillinger left Washington on April 17 for Minneapolis to confer with University and State officials on the disease research activities in Minnesota, with special reference to more effective methods of collecting specimens and the procedures to be followed in examining pathological material. The present density of wildlife in the North Central States indicates

that a decline may be expected in the near future, with a consequent abundance of pathological material for study.

Disease Prevalent in Rabbits.—Local observers in northern Virginia are reporting a number of dead cottontail rabbits. Dr. Shillinger and Dr. L. C. Morley in company with Dr. R. G. Green, cooperator at the University of Minnesota, who visited the area on April 14, report that the decimation is caused by an outbreak of tularemia. Field mice are exceedingly abundant, but they are probably also dying from some ailment, as a number are being found dead in that vicinity. Steps are being taken to learn if there is any disease relationship between the simultaneous losses in rabbits and field mice on the same area.

Inspects Submarginal Land Area.—On April 15 Dr. Morley left Washington for Cornelia, Ga., upon invitation of the Forest Service to examine a large area in the northeastern part of that State now being developed for forest, wildlife, and recreational purposes. It is his purpose to go over the area and make recommendations for increasing its wildlife resources.

Addresses Bacteriologists.—Dr. R. G. Green on April 17 addressed the Society of Bacteriologists in New York City on some of the results of work on wildlife-disease studies. There have been several previously unknown diseases brought to light as a result of the Bureau's cooperative research on disease at the University of Minnesota, and these facts are of considerable interest to special workers in the field of bacteriology and immunology.

Confer on Western Disease Conditions.—Dr. F. D. McKenney met Dr. Shillinger in Salt Lake City on April 20 to discuss the progress of the work in rabbit-disease investigations. They also conferred with workers in animal pathology at the State agricultural colleges at Logan, Utah, and Fort Collins, Colo.

MIGRATORY WATERFOWL

North Dakota Easement Projects Nearing Completion.—M. O. Steen, assistant project director, with headquarters at Bismarck, N. Dak., reports excellent progress on projects involving areas on which the Biological Survey secures jurisdiction by easements. These convey to the Bureau perpetual refuge control and construction, inundation, and maintenance rights and clear the way for the consummation of projects that are proving to be popular with the citizens of North Dakota. The project areas selected for development have been subject to close scrutiny with respect to their value as water- and wildlife-conservation areas, flood and soil-erosion-control units, and as work projects, with particular emphasis placed upon their biological suitability for waterfowl. Construction work on the various refuge units has been, and in the future will be, confined to types of construction that provide permanent structures with minimum hazards and maximum storage. The construction work has thus far been provided through the cooperation of the CCC and the State and Federal Emergency Relief Administrations. The continuation of the development of the program in this manner will make it possible to remove large numbers of able-bodied persons from relief rolls in North Dakota, and as the refuge areas on

which Mr. Steen has already obtained easements are located over a wide range throughout the State, it will also be possible to provide employment in the home communities of the workers. Easements covering 74,602.93 acres have been secured on 78 separate projects, 58 of which, embracing a total of 55,785.98 acres, may be considered complete by virtue of easements already taken, though it is hoped to extend the areas of 24 of the 58. This program will augment the large Upper and Lower Souris, Lostwood Lakes, Arrowwood Lakes, and Des Lacs projects, and as the Bureau will have direct control over the easement project areas for refuge purposes, without the added cost of land acquisition, the restoration work in North Dakota will attain a much greater degree of effectiveness because of the large number of small refuge areas for waterfowl obtained by means of these easements.

Makes Field Examinations.--Mr. Salyer, in April, made a selective examination of areas in the Middle West that had been recommended by Bureau biologists and reconnaissance men. He was in attendance at the Izaak Walton League Convention in Chicago and left immediately thereafter to confer with Minnesota State officials and to examine the most promising recommended areas in that State. Mr. Salyer then, with the assistance of John N. Ball, associate land negotiator, made a careful study of Missouri and Mississippi River areas in Iowa, Nebraska, Missouri, Kansas, and Illinois, as well as of the famous Kankakee Marshes in Indiana. In May, Mr. Salyer visited the Bull Island area, which is of great importance as an addition to the Cape Romain refuge. On this trip, he also made a careful inspection of the Savannah River and Lake Mattamuskeet Refuges, with a view to determining what improvements might be made to increase their serviceability to waterfowl, and in the instance of Lake Mattamuskeet, to determine at first-hand what should be done with respect to the proposed plan of removing bass from the lake.

Talcot Lake Refuge Realized.--In negotiations with officials of the Minnesota Department of Conservation, Mr. Salyer was successful in removing all obstacles jeopardizing the success of a fine refuge embracing Talcot Lake in Cottonwood County, and the Bureau entered into a cooperative agreement with the State Department of Conservation assuring the establishment of the refuge. Under the terms of this cooperative agreement, the State of Minnesota acquires the land and necessary flowage rights and transfers title to a desirable area of not less than 1,000 acres, including a dam site, to the Bureau. The agreement provides that the Bureau shall construct a dam on the Des Moines River at the outlet of Talcot Lake. The contract for this work was awarded, on a competitive bidding basis, on April 22. The Bureau will extend biological and maintenance service to the area in cooperation with the Minnesota Department of Conservation.

Plans Biological Improvement Work.--W. F. Kubichek, who has been transferred to this Division from the Division of Wildlife Research, is on an extended field trip visiting the new refuges on which there are CCC camps and also such older refuges as are to be rehabilitated. He is making a general covert survey on all the new refuge areas and is planning the food and cover planting and soil-erosion work for the CCC camps in such way as to insure the development of each refuge to the greatest biological advantage. He is also making surveys to determine and put into action the urgently needed restoration of existing refuges that have been either seriously im-

paired or entirely ruined as a result of grazing and drainage activities.

Agricultural Engineering Chief Making Studies for the Survey.--S. H. McCrory, Chief of the Bureau of Agricultural Engineering, is in the field making a careful study of the engineering possibilities of several recommended migratory-waterfowl refuge areas that present more than the ordinary engineering complexity. His willingness to give his personal attention to these particularly perplexing problems is much appreciated by all concerned with the success of the refuge program.

Conducts Special Water Studies.--S. A. Young has been making a special study of water problems on several Pacific-coast areas being considered by the Bureau for migratory-waterfowl-refuge development. At the present time he has just completed a survey of the Salton Sea area to determine what steps might be taken to assure stable water conditions there.

Takes over Malheur Superintendency.--This Division feels fortunate in being able to effect the transfer of Stanley G. Jewett from the Division of Game Management to direct the work of maintaining and improving the Lake Malheur Refuge. Many difficulties must be surmounted in bringing the refuge to the peak of its efficiency and the Division is pleased to have a man of Mr. Jewett's caliber in the post of refuge superintendent. The Game Management Division's willingness to release him is illustrative of its ready and spontaneous cooperation with the Migratory Waterfowl Program, and is characteristic of the response of that Division to every request or contact in connection with the restoration program. The wealth of experience that both the field forces and the Washington personnel have made available to this Division has been invaluable to the restoration program.

Personnel Added to Washington Force.--The ever increasing volume of work has made it necessary to add two new members to the Division's staff. Miss Elizabeth McGrath was transferred, under a temporary appointment, to the Division on April 25 and was given a permanent appointment as junior stenographer on June 6. Joseph Loeb was given a temporary appointment on April 24 as file clerk, in charge of the Division's record and correspondence files.

Resettlement Administration Takes over Land Purchase Program.--Following the realignment of the Federal agencies concerned with emergency relief work made necessary by the Emergency Relief Appropriation Act, the Rural Land Planning and Development Division of the Resettlement Administration took over, on June 1, the responsibility of acquiring title to all refuge areas taken under option by the Bureau. This work was formerly done by the Land Program of F.E.R.A.

Refuge Has Old Indian Name.--Many of those who have followed the refuge-development activities of the Migratory Waterfowl Division know that the Day County (S. Dak.) refuge area, encompassing Hildebrand and Spring Lakes, will be officially known as the Waubay Migratory Waterfowl Refuge. Many are not aware, however, that the name "Waubay" is derived from the Sioux Indian word "Wa-Be", meaning hatching ground, and that in order to conform more fully to the Indian pronunciation, the white man spells the name Waubay. According to a local South Dakota newspaper, the

legend that goes with the naming is as follows: The Indians who first settled in that vicinity made settlement at or near the Old Indian Agency site. They saw a flock of birds resembling a huge cloud, coming from the west over the hills. The Indians went into the hills, found the hatching grounds, and termed it Waubay. It is the hope of the Bureau that, under careful, scientific maintenance, these same hatching grounds will produce waterfowl in numbers approaching the abundance the Sioux Indians found when they saw the "flock of birds coming, like a huge cloud, over the hills from the west". The area will then reflect the full significance of its name--Wa-Be--hatching ground.

LAND ACQUISITION

Emergency Projects Progress.--Progress of optioning and condemnation on projects in connection with the emergency land program has reached the point where it can now be reported that options or commitments have been obtained, or condemnations secured, on approximately all the total acreage involved in the original program. This includes approximately 768,000 acres.

Projects Approved.--The following proposed projects have been approved by FERA or its successor, the Resettlement Administration: Bark River, Wis.; Red Rock Lakes, Mont.; Squaw Creek, Mo.; Waubay, S. Dak.; and Lake Bowdoin, Mont. The following projects have been submitted to RA for approval: Delta, Lacassine, and Sabine Lake, La.; Rice Lake, Minn.; Swan Lake, Mo.; Lake Isom, Tenn.; Muleshoe, Tex.; and additions to Cape Romain, S. C., Crescent Lake, Mont., and St. Marks, Fla.

Public Domain Projects.--Notification has been received of the approval by the Acting Secretary of the Department of the Interior of the proposed Executive order for the withdrawal of all public domain in the Red Rock Lakes area. Options have already been obtained for about 21,000 acres in this area, and the reservation of the public domain for the refuge will help materially in rounding out the area in the interests of establishing the best possible refuge.

Boundary Surveys Being Made.--Twenty-one completely equipped field parties are now actively engaged in making boundary surveys and posting refuges. This includes work on refuges in North Dakota, Missouri, South Dakota, Nebraska, Tennessee, and Oregon.

Movements of Personnel.--A. A. Riemer has recently made inspection trips to many of the eastern refuges. R. M. Rutherford and A. J. Rissman have reported for duty in Washington. Elman Radway is now in Maine examining the Moose Horn project. C. S. Cook is making Minot, N. Dak., his headquarters while supervising boundary surveys on the following projects in that State: Arrowwood, Des Lacs, Lostwood, Lower Souris, and Upper Souris. D. E. Woodward, R. H. Putnam, and Carey H. Bennett have recently made short trips to Washington but have returned to the field. T. M. Conrardy, R. R. Cunningham, and R. E. Kirkham are now engaged in boundary work under the supervision of K. C. Kern, with headquarters at Valentine, Nebr.

GAME MANAGEMENT

Lectures at University of Michigan.--Mr. Young spent a few days during the week of April 29 to May 4 at the University of Michigan, his Alma Mater, lecturing to classes of the School of Forestry and Conservation on game management problems. During the week a luncheon was given by the faculty of this school in honor of Mr. Young, who at one time was assistant in the geology department. With D. H. Janzen, regional director for Region No. 6, he conferred on game-management problems, and visited the regional headquarters at Lansing, Mich. At a Springfield (Ohio) factory he viewed the developments in the manufacture of red-squill products.

Speaks on Cooperative Control Work of the Bureau.--Representing Mr. Darling, Mr. Young attended and addressed the annual meeting of the New Mexico Wool Growers and Cattle Growers Associations on March 26 at Roswell, N. Mex. A meeting of the executive committees of both associations was held to discuss what the Bureau could do further to aid in the control of the coyote which seemingly is on the increase in certain sections of New Mexico and is causing severe damage, particularly to the sheep interests. Following the meeting at Roswell, Mr. Young visited the Carlsbad Bird Refuge in company with the president of the New Mexico Game Protective Association, Elliott Barker, State game warden, Regional Director Gilchrist, Game Management Agent Charles Gillham, and District Agent John C. Gatlin. This area was recently posted by the Division of Land Acquisition. While in this immediate section opportunity was afforded to look over the Bitter Lake area, proposed as a migratory-bird refuge by the State Game Department and sportsmen of New Mexico.

Becomes Director of Region No. 1.--To fill the position of Regional Director in the Pacific Region (No. 1) made vacant by the transfer of Ira N. Gabrielson to the Washington office, William M. Rush has been transferred from the Forest Service to the Biological Survey. Mr. Rush entered the Forest Service as forest guard on May 20, 1912, on the Absaroka National Forest. He has subsequently served as district ranger on that Forest as well as on the Helena and Cabinet National Forests and then later as a forest supervisor on the Lewis and Clark National Forest. Four years, 1928-32, were spent in Yellowstone National Park on wildlife studies pursuant to a cooperative agreement between the Biological Survey, the Forest Service, the National Park Service, and the Montana State Game Department. In recent years he has been assigned to the Forest regional-office headquarters at Missoula, Mont., in charge of game studies. Throughout Mr. Rush's long association with the Forest Service he has handled a wide variety of grazing and game-management work. The opportunity thus afforded him, together with his zeal for the study of wildlife problems, has resulted in his becoming a specialist on grazing and wildlife-management problems, and a recognized field naturalist of exceptional ability. Much of his work has been published in magazines interested in wildlife conservation. Mr. Rush's technical skill, his long experience as administrative officer dealing with the public, and his enthusiasm for this particular line of work admirably fits him for the duties of regional director in the Biological Survey.

To Superintend Enlarged Malheur Refuge.--Effective May 15, Stanley G. Jewett, long connected with the Bureau's work as district agent in rodent and predatory

animal control in Oregon, was made superintendent of the Malheur Migratory Bird Refuge, where a large development program is now being carried on because of the acquisition of the famous "P" ranch, through which flows the Blitzen River, the main inlet into Malheur Lake. Mr. Jewett's long association with Bureau affairs in that part of the Northwest, and his intimate knowledge of bird and mammal life, in addition to his acquaintance with local conditions, admirably fit him for handling the important details constantly arising with reference to this greatly enlarged area. To fill the vacancy existing in the Oregon district as result of Mr. Jewett's promotion and transfer, Roy Fugate, long an assistant in that State, will become district agent. Mr. Fugate assisted Mr. Gabrielson during the time of the dual leadership in Oregon and then later assisted Mr. Jewett when the control work was placed under one leadership. Mr. Fugate thus assumes his duties as district agent with a background of long experience in mammal control.

In the Field.--C. A. Leichhardt left Washington on March 18 to assist Regional Directors Janzen and Tonkin in field work in connection with game-law enforcement. He spent considerable time in the field with game-management agents and rendered them much needed assistance and advice in their work. He also assisted the regional directors in organizing their law-enforcement activities. During this trip he visited various points in Ohio, Kentucky, Indiana, Michigan, Illinois, Iowa, and Minnesota.

Refuge Administration

Wichita National Forest and Game Preserve.--On March 29, Mr. Young left Roswell with Harry H. French for the Wichita National Forest and Game Preserve in southwestern Oklahoma. Charles Gillham accompanied them as far as Lubbock, Tex. En route inspection was made of some of the larger lakes in this area of Texas, which served as resting grounds for numerous migratory birds during the spring and fall migrations. Mr. French and Mr. Young reached the Wichita on March 30, and on April 1 with Mr. French and Forest Service officials from the Denver regional office, the transfer of the Wichita from the Forest Service to the Bureau was consummated.

The Wichita National Forest and Game Preserve will become for the most part a major wildlife experiment station, where the Bureau under the Division of Wildlife Research will carry out much needed investigations with reference to big-game animals, upland game birds, as well as migratory birds. In the past two years considerable development of the Wichita has been possible under PWA and ECW programs, resulting in the development of some 18 small lakes, which will serve as a resting ground, and possibly in the future as a breeding and nesting ground, for migratory birds. Development of the area still needs to be carried on with reference to the dam construction, clearing out of underbrush on the dam sites, as well as improvement of recreational areas planned to be set aside for the use of the public. In addition, it is contemplated in the near future to start construction on the Wildlife Research Laboratory and a small museum where wildlife characteristic of that southwestern area will be displayed. En route back to Washington Mr. Young stopped with District Agent A. E. Gray, of Oklahoma City, and also met Mr. Garlough and Mr. Wells now engaged on experimental work with reference to rodent control on the Shelter Belt Program; also J. M. Jackson who has been working under Mr. Gray's supervision with reference to ECW rodent control on Indian lands in Oklahoma. Mr. Jackson has a fine project developed

of a cooperative nature in five of the Western Oklahoma counties and involves both Indian and private lands for the control of prairie dogs. Mr. Young stopped at Chicago to discuss the publication by the Chicago Academy of Sciences of his photographic wolf expedition in Louisiana last fall.

Mr. French, long associated with the Forest Service in Colorado, and in later years as supervisor of the Wichita, has been transferred to the Biological Survey and will be superintendent of this area under the administration of the Bureau. Mr. Drummond, ranger and herdsman, long connected with the Wichita, and, for at least the time being, Harry Keep, former forest ranger on the Uncompahgre National Forest in Colorado, were also transferred to the Survey. To assist in the clerical and financial work of the Wichita, Miss Lisbeth Frigo was transferred from the Washington office.

Develop Water at Wichita.--It is believed that all the small lakes that have recently been created on the Wichita preserve will serve as resting, feeding, and, possibly, nesting grounds for migratory birds. This area being along the line of the central flyway and possessing considerable game food, the water development adds a further attraction for the migrants. In this connection, Harry H. French, superintendent of the area, comments recently with respect to one of the water areas, known as Lake Comanche, as follows: "On April 2, in company with Stanley P. Young, I saw quite a number of ducks, possibly 50, on Lake Comanche. The following species were observed: Lesser scaup, redhead, butter ball, mallard, and sprig. Approximately 150 'Canadian Honkers' were seen on Lake Comanche April 6, which is late in the season ordinarily for them to be seen in this locality, and, so far as I know, the only geese known to have alighted in the Wichita for some considerable time. In this connection, various species of ducks have been seen recently in comparatively large number on all of the newly constructed lakes, which establishes indisputable argument as to their economic value and contribution for refuge purposes."

Many Join in Easter Service at Wichita.--Probably one of the largest crowds ever assembled in southwestern Oklahoma gathered in the Wichita Preserve to witness the sunrise Easter service this year, reports Harry H. French, superintendent. For the past 8 years, says Mr. French, the story of Easter had been depicted annually in a pageant just outside the Wichita preserve. This year the prospects of large crowds led those in charge to select an area within the preserve. Checkers on the three routes leading to the mountain site selected tallied 12,528 automobiles.

Report Data on Elk Feeding.--Feeding the animals at the Elk Refuge, Wyo., ended on April 20. During the 110 days that the elk were fed they consumed 3,255 tons of hay furnished by the Biological Survey and 170 tons of cottonseed cake and 50 tons of corn furnished by the State Game Department. An additional 150 tons of cottonseed cake were purchased this spring by the Biological Survey, and of this amount 32 tons were fed. On May 2, about 80 percent of the elk that were on the Refuge during the winter had begun their migration northward to their summer range.

Sheldon Refuge in Good Condition.--Ernest J. Greenwalt, in charge of the Charles Sheldon Wildlife Refuge, Nev., reports that a total precipitation of 1.97 inches was recorded on the refuge for April, bringing the seasonal total to 10.15

inches. He states that this is the greatest amount of winter moisture recorded in many years. The range was in excellent condition, with grass more than 3 inches high at the end of April. In early April there were several hundred antelope on the northeast tablelands, but by the end of the month they had scattered widely in small groups. Deer at this point are losing their fear of man inside the refuge, and bands varying from 8 to 17 in number have been seen during April in different areas, grazing in the open at considerable distances from cover. Migration of many species of birds into this region was delayed by late storms, until the end of April.

Trees Planted at Niobrara.--Approximately 185 acres of trees, mostly of broadleaf variety, were planted at Niobrara Game Preserve, Nebr., during April, by CCC camp workers. In spite of considerable rainfall on this area, dust storms have been very troublesome.

Buffalo Calves Reported.--The birth of 22 buffalo calves in the herd at Niobrara Game Preserve has been reported, also 3 at the National Bison Range, Mont., and 1 at the Wind Cave Game Preserve, S. Dak.

Visit Bear River Refuge.--A party of 312 teachers and students from the Weber County High School, Ogden, Utah, in 7 school busses, were conducted over the Bear River Migratory Bird Refuge, Utah, late in April by Superintendent George E. Mushbach, V. T. Wilson, and Archie V. Hull of the refuge personnel, and Clifford Fretwell, U. S. game management agent.

Tule Lake Reaches High Level.--Tule Lake, within the Tule Lake Bird Refuge and the Klamath Irrigation Project, in April was at record high level, according to information furnished by one of the irrigation-project employes. At that time, with the water level $2\frac{1}{2}$ inches higher than at any time previously recorded, it was necessary for the irrigation authorities to have much work done on the dikes to hold the water.

Canada Geese Shipped to Niobrara.--Six Canada geese were recently shipped from the flock raised and held at Sullys Hill Game Preserve, N. Dak., to Niobrara Game Preserve, Nebr., where they were to be placed on ponds developed there.

Reports Migrant Birds Seen at Sullys Hill.--Wesley D. Parker, in charge, Sullys Hill Game Preserve, N. Dak., reports regarding migrating birds as follows: "Much time has been taken to study migratory water birds on their way north, and it has been decided that geese have decreased little if any, in numbers during the last four years, but not over one-fourth as many ducks flew north this spring as were seen four years ago. . . . Scaups were the only ducks that were fairly numerous."

Birds Shift Nesting Grounds.--J. V. Kelsey, U. S. game management agent stationed at Daytona Beach, Fla., reported under date of May 6 that, because of unprecedented drought conditions, birds in southern Florida have been obliged to shift their nesting grounds from the usual coastal regions to deep within the

cypress country to the north. Among those so changing their nesting grounds were thousands of plume birds. Mr. Kelsey stated that late in April practically all ducks were out of Florida on their way to northern nesting grounds, but that probably more were remaining in that region this year than heretofore.

Wood Ducks Decrease at Big Lake.--The first young wood ducks of this season were seen at Big Lake Bird Refuge, Ark., on April 24. A decrease has been noted in the number of these ducks on the refuge as compared with last year.

Geese Nest at Malheur.--On April 14, George M. Benson, of Lake Malheur Bird Refuge, Oreg., located the nest of a Canada goose near the highway on top of an old muskrat house in a place made swampy by spring water. Mr. Benson states: "I observed a pair of geese sitting near together, and every time a car passed along the highway they would drop down as low as they possibly could. Ordinarily they would not have been observed by anyone passing by." On April 18, on a trip over the lake, Mr. Benson stated he could see Canada geese sitting on nests in almost every direction. On April 25, Mr. Benson found 8 goose nests on a tule island about 75 by 100 feet in area. He says: "This is a sight I never saw before on Lake Malheur. There are 16 straw and hay stacks within the water area and the stacks will average 2 goose nests to the stack. Every stack or high place had a goose nest on it. Sixty nests were observed. Two eggs per nest were the smallest number and 9 eggs the largest." About 200 snow geese and 150 white-fronted geese were seen on the lake on this date. Two Canada geese are nesting near the headquarters. More coots were reported on the refuge this spring than during the past five or six years.

Blackwater CCC Boys Have Paper.--Company 1392 of the Civilian Conservation Corps located at the Blackwater Migratory Bird Refuge, Md., issues a monthly camp paper called the Blackwater Echo.

Attends Convention.--Ray C. Steele, superintendent of the Upper Mississippi Wildlife and Fish Refuge, attended the national convention of the Izaak Walton League of America, in Chicago, April 11 to 13.

Water High at Upper Mississippi Refuge.--The unusual amount of snow in the watershed of the Upper Mississippi River and its tributaries during the past winter resulted in the highest stage of water in the river within the Upper Mississippi Refuge since 1922. The peak of the rise was attained on March 30, when a gage reading of 11.1 was recorded at Winona. This high stage of water overflowing cornfields, bottom-land meadows, and woodlands attracted considerable numbers of wild ducks. The consensus of refuge rangers and other experienced observers was that, although present in considerable numbers, the birds were somewhat less numerous than a year ago. Mallards and scaups were the predominating species, the former in the majority. A noteworthy fact was the proportionate increase in the number of pintails as compared with other species, pintails rating third place. After the run-off resulting from the melted snow had spent itself, the river was rapidly falling, and by April 11 the stage at Winona had dropped from the 11.1 (on March 30) to only 5.8 and was still dropping at the rate of nearly half a foot a day.

Reports Proceeds from Hay Permits.--Superintendent Steele reports that the 197 permits issued last season to drought-ridden farmers living adjacent to the Upper Mississippi Refuge, allowing them to cut wild hay from refuge meadows, netted the Government a total of \$2,295.81, being approximately 1,530 tons, at a nominal fee of \$1.50 a ton.

Law Enforcement

Cooperation Praised.--Bureau activities to suppress game-law violations in Iowa during the spring migration were commended by officials of the State Fish and Game Commission. Wm. Schuenke, chief supervisor of game wardens, wrote: "We are drawing our work on special patrolling during the spring migratory bird flight to a close and I want at this time to express our appreciation for the fine cooperation given us through your efforts and those of your representatives, Mr. Tonkin and Mr. Shaver, as well as for the fine work done by your deputy wardens. . . . The concentration of wardens in certain districts certainly had the desired effect, as at no time before have we received so few complaints and encountered so few violations as this year. In my personal opinion this was due as much to the psychological effect of having the State and Federal wardens concentrated at certain points as to any other one thing."

In the Field.--F. P. Callaghan conferred with game-management agents and State officers at Norfolk, Va., on May 13, and with two agents and members of the raw-fur trade in New York City from May 20 to 25.

Transfers to Enforcement Work.--Guy W. Lane has recently transferred from the Division of Administration to assist in work relative to prosecutions under the several Acts relating to the protection of game and birds. Mr. Lane will also serve the Division of Game Management in an advisory capacity on matters pertaining to finances, allotments, and purchases under competitive bids.

Check Raw-Fur Shipments.--Bureau representatives at raw-fur receiving houses in June carried on investigations to see that interstate shipments of pelts have been made in accordance with the Lacey Act.

Fur-leggers Convicted in Alaska.--Fur-legging conspiracy cases against an Alaskan aviator, a fur dealer, and a captain of a gas boat, involving illicit traffic in beaver skins were recently concluded with heavy fines in Federal Court in Alaska. Two entering pleas of guilty were fined \$750 each. The plane used in the illicit operations was confiscated and, after the conviction, was sold by the Government. The gas-boat captain likewise entered a plea of guilty and was fined \$500, and the boat used in smuggling the skins was ordered sold for wages due deckhands.

Spring Violators Restrained.--Activity of game management agents and flying squadrons resulted in the apprehension of a number of spring shooters and also in preventing violations by others. In Texas 7 men were taken into custody for killing and possessing an aggregate of 77 plovers. Four were members of the local police department and one the manager of the city prison farm. Among other cases

reported for prosecution were: 5 in Iowa for killing geese in close season; 5 in Louisiana, 2 for killing ducks in close season, 2 for killing ducks in excess of the daily limit, and 1 for killing ducks from a motor boat; 1 in Missouri for possessing yellowlegs; 5 in North Carolina, 2 for killing geese in close season and 3 for killing ducks from a motor boat; 2 in Oklahoma for killing ducks in close season; 7 in South Dakota for killing waterfowl in close season; and 3 in Virginia for trapping ducks.

Recent convictions included the following: 2 in Illinois for killing ducks in close season were fined \$100 each; 2 in Ohio for hunting ducks over bait after 3 p. m. were fined \$50 each; 5 in Florida for killing ducks in excess of the daily bag were fined \$10 each; 5 in Georgia for killing doves over bait were fined \$10 each; 13 in Georgia for killing doves over bait were fined \$25 each; 10 in Illinois for selling ducks were fined from \$10 to \$50 each; and 1 in Wisconsin for hunting ducks after sunset was fined \$50. The Department of Justice early in April addressed a letter to all United States attorneys urging vigorous prosecution of Migratory Bird Treaty Act cases.

"Duck-legger" Sentenced.--On May 13 in Federal court at Norfolk, Va., Judge Luther B. Way presiding, a defendant reputed to be the largest bootlegger of wild trapped ducks on the Eastern Shore of Virginia was arraigned and charged with selling and shipping ducks. He entered a plea of guilty and was sentenced on one count to serve 6 months in jail. The court also imposed a 6-months sentence on each of the four remaining counts (24 months in all) to be served consecutively in the event the defendant should again be apprehended violating the game laws within the next five years. Another defendant, who had aided the former in shipping wild ducks, entered a plea of guilty and on one count (shipping ducks) was given 10 days in jail. He received a suspended sentence on three other counts. Another case involving the sale of one wild goose on February 23, by a resident of Accomac County, was disposed of by a \$25 fine. Other cases were disposed of at Norfolk on May 8 as follows: Two charged with hunting ducks after sunset entered pleas of not guilty but were adjudged guilty by the court and given suspended sentences for two years. In two cases involving charges of trapping ducks, one sentence was suspended after a plea of guilty and the other defendant, found guilty, paid a fine of \$25. One other defendant, charged with attempting to trap ducks, entered a plea of not guilty, which was sustained by the court.

Fined \$100 for Violating Close Season.--On April 22 at Portland, Maine, a defendant charged with killing ducks in close season was sentenced to pay a fine of \$100 and to serve 2 months in jail. The fine was paid and the jail sentence suspended after a severe reprimand.

Demurrers Overruled.--Demurrers filed in Federal Court at St. Louis, Mo., by two persons charged with killing doves over bait, contending that the Migratory Bird Treaty Act was an attempt by Congress to delegate legislative power to an administrative officer and therefore unconstitutional, were overruled by Federal Judge C. B. Davis on April 24.

Taking Ducks in Close Season Costs Violators \$25.--Two gunners from Crisfield, Md., entered pleas of guilty at Denton on April 8 to killing and possessing ducks in the close season and were fined \$25 each.

Commercial Violators Fined Heavily.--Indicating in emphatic language that the commercial handling of wild fowl is a serious offense and completely subversive of the purpose of the law, Judge W. Calvin Chestnut, in Federal Court at Baltimore, Md., during April meted out unusually heavy fines for violations of the Treaty Act. On a plea of guilty to the charge of selling 6 trapped wild ducks, a restaurant proprietor of Salisbury, Md., was fined \$100. An illegal hunter of Aberdeen, Md., was fined \$10 for killing two bufflehead ducks. Three other defendants who entered pleas of guilty to possessing canvasback and scaup ducks in excess of the bag limits were sentenced to pay fines of \$25 each and costs aggregating \$67.75. The four illegal hunters whose cases were thus disposed of were gunning on the Susquehanna Flats, in Maryland, when taken by deputies of the Biological Survey in November and December 1934. The last three mentioned had in possession 39 canvasback and 45 scaup ducks.

Close-Season Hunters Jailed.--Eight Treaty Act cases involving the killing of wild ducks during close season were disposed of in Federal Court at Washington, N.C., before Judge Isaac M. Meekins, on April 22, and the defendants convicted. The violations by four of the offenders occurred on the Mattamuskeet Migratory Bird Refuge. Five of the defendants were first sentenced by the court to serve 30 days each in jail, but the sentences were later reduced to 10 days. The three remaining defendants were placed on probation for 6 months.

Sentenced to 60 Days in Jail.--Two defendants arraigned in Federal Court, before Judge Earl Major, at Peoria, Ill., on May 9 were adjudged guilty of killing waterfowl in close season. One, a second offender, was sentenced to 60 days in jail and in addition was required to pay a \$50 fine. The other paid a fine of \$10. On the preceding day 10 cases were disposed of before Judge Major, 9 for selling wild ducks and 1 involving the killing of ducks in close season. Two defendants were fined \$10 each; four \$25 each; one \$50 and 10 days in jail; two \$25 each and 30 days each in jail; and one \$50 and 60 days in jail.

Duck Stamp Sales Over 600,000.--On March 31 the sales of migratory-bird hunting stamps aggregated 611,959. The largest returns were as follows: Minnesota, 50,216; Texas, 41,258; Illinois, 40,512; Wisconsin, 40,482; California, 37,316; Washington (and Alaska), 31,621; Oklahoma, 27,732; Michigan, 23,975; Missouri, 22,570; Nebraska, 21,251; New York, 20,053; and Louisiana, 19,723.

Reports Upper Mississippi Refuge Cases.--Ray C. Steele, superintendent of the Upper Mississippi Wildlife and Fish Refuge, reports that four cases involving hunting migratory waterfowl after sunset were recently terminated in Federal Court at Dubuque, Iowa, with pleas of guilty and fines of \$25 each, plus costs. The fines were suspended and the defendants placed on probation for six months. A case involving raccoon hunting on the refuge was terminated with a plea of guilty, but imposition of sentence was postponed. Evidence in all five cases was secured by Ranger Lundberg

assisted by Deputy Snyder. In Federal court at La Crosse, Wis., a defendant charged with unlawful trapping on the refuge entered a plea of guilty and was sentenced to serve 2 days in jail, on evidence obtained by Ranger Lawrence. For hunting and possessing ducks during the close season two Wisconsin residents were recently arrested by Deputies Frerichs and Lee and upon arraignment before a U. S. Commissioner at La Crosse, Wis., examination was waived and bonds in the amount of \$500 each were fixed. Being unable to furnish the required bonds, both defendants were committed to jail to await the next term of court.

For hunting ducks during close season a resident of Buffalo County, Wisconsin, was arrested in Wabasha County, Minn., by Deputy Ranger Winslow, and upon arraignment before a United States Commissioner at Winona was bound over to the next term of Federal Court, bail being fixed at \$500, which the defendant was unable to furnish, and in consequence he was committed to jail to await the next term of court. Arrested by Ranger Hall and Deputy Lee for shooting muskrats in the river bottoms in Houston County, Minn., a resident of La Crosse, Wis., entered a plea of guilty before a justice of the peace at La Crescent and was sentenced to pay a fine of \$50 plus costs of \$5.75, or in default to serve 60 days in jail. Fine and costs were paid. In addition, the violator's gun and the muskrats were confiscated and turned over to the State. Two other residents of La Crosse were arrested on April 3 by Ranger Hall and Deputy Frerichs for trapping muskrats in Minnesota during close season. After entering a plea of guilty before a justice of the peace at Caledonia, Minn., one defendant paid a fine of \$50 and costs of \$7.45. Another defendant who pled guilty was also fined \$50 and costs amounting to \$5.75, but because of his youth the fine and costs were suspended and he was placed on probation for a period of 6 months. For trapping muskrats during close season a resident of Prairie du Chien, Wis., was arrested by Ranger Lundberg and Deputy Snyder, and upon a plea of guilty was sentenced to pay a fine of \$50 with costs of \$3.58. For the possession of one mallard duck and for hunting without a license, a resident of Clinton, Iowa, was apprehended on April 6 by Deputy Ranger Scranton in cooperation with State Warden Courtwright. After pleading guilty the defendant paid a fine of \$60 and costs of \$4.50. A resident of Clinton, Iowa, was arrested by Deputy Scranton in cooperation with State Warden Courtwright, and after a plea of guilty to hunting without a requisite license paid a fine of \$10 and costs of \$2.25. On April 11 an Indian trapper was apprehended near La Crosse, Wis., by Ranger Hall and Deputy Frerichs for causing traps for muskrats to be set on the refuge.

Importations

Mynas Deported.---Seven common Indian mynas (*Acridotheres tristis*), an injurious species, which under Federal law is not permitted to be imported and under State law is prohibited entry in California, arrived at San Francisco, on the Steamer Makura from Papeete, Tahiti, on March 11. Being refused entry after identification by the inspector of this Department, the birds were returned to the shipper in Papeete, Tahiti, on the same steamer.

Monkeys Admitted.---An unusually large number of rhesus monkeys have recently been imported from Calcutta, India. During one month, permits were issued for a total of 3,030, and one shipment alone contained 1,000.

Mexican-quail Importations Jump.--A total of 23,358 quail were imported from Mexico during the 2½ months' season which closed on April 30, an increase of about 9,700 over the number imported in 1934. This year 13,903 of the quail were entered at Laredo and 9,455 at Eagle Pass. The bulk of the birds were shipped to Texas, Kentucky, and Mississippi.

Fruit Bat Killed.--A fruit bat, the importation of which into the United States or any of its Territories is prohibited by law, arrived in a miscellaneous shipment of birds and other animals from Cape Town, South Africa, on April 15, consigned to the Staten Island Zoological Park, in New York. On advice from the Bureau this animal was promptly killed by the Customs officers after arrival at New York. The Zoo, however, was allowed to retain the dead body of the animal to be mounted for exhibition purposes.

Penguins Imported in Refrigerators.--Permit was recently issued for the importation of 15 penguins by the Byrd Antarctic Expedition. It was necessary to transport the birds in refrigerators at a temperature of about 30° F. in order to insure their arrival in a healthy condition for exhibition in the United States. The birds will later be donated to the New York Zoological Park, it is understood.

Elephant Seals Brought to San Diego for Exposition.--Two elephant seals were recently imported from Guadalupe Island, Mexico, for the San Diego (Calif.) Exposition.

Eggs Imported.--Several shipments of eggs of game birds for propagation have recently been imported. Two large shipments from England contained 750 pheasant eggs each, and another 500.

Predator and Rodent Control

Miss Adelaide G. King, after serving approximately 13 years with the Bureau, retired on May 1 from the office of the regional director at Portland, Oreg. Miss King has an enviable record of exceptional and meritorious service with the Biological Survey, and the good wishes of the Bureau go with her.

W. H. Caywood, hunter of the Colorado District, was retired on April 1 because of disability resulting from injuries received in line of duty, after having served with the Bureau since 1915. It was through the efforts of this widely known wolf hunter that several of the last renegade wolves in Colorado were captured, and the necessity for his retirement is regretted. He has the best wishes of his Bureau associates.

Exceptional Litters Taken.--District Agent W. E. Riter, of Colorado, reports that Agent Hunter Vurland Crook recently captured a den of 17 coyote pups and trapped the mother of the litter. Mr. Riter reports that Hunter Theodore Hampton also took a den of 17 coyote pups in northwestern Colorado. District Agent A. E. Gray, of the Oklahoma-Arkansas District, reports that Hunter Lute Weems took a den of 16 wolf pups in Jefferson County, Okla., and also trapped both parents.

On Detail in Washington.--Harold Crowley arrived in Washington on May 9 from the Bait Mixing Station at Pocatello, Idaho, to assist on work in connection with the rush incident to emergency programs relating to predator and rodent control activities.

Supplies Being Delivered for Emergency Programs.--Rodent-control supplies for the preparation of poison baits are being purchased and delivered to the Bait Mixing Station, Pocatello, Idaho. These supplies are to be used in connection with ECW rodent-control campaigns, in cooperation with the Forest Service and the Bureau of Indian Affairs and the Division of Grazing, of the Department of the Interior. The bait-mixing station is in full operation.

Rabbit Drives Held in New Mexico.--Successful drives for the control of jack rabbits were held last spring in Hidalgo County, N. Mex. Man power for the drive was largely furnished from the transient relief camp at Lordsburg, N. Mex., a local motor company donating a truck for transporting the men to the scene of activity, reports John C. Gatlin, district agent in New Mexico.

Colorado County Finances Rodent Control.--Delta County, Colo., has authorized the expenditure of \$1,500 to continue the control of prairie dogs in a pest-control district organized within its boundaries last year. On the area that it was possible to treat last season the results obtained were largely instrumental in obtaining additional funds for the continuation of the control work, reports W. E. Riter, district agent at Denver.

Deputy Agents Employed in Rodent Control.--Several deputy game-management agents employed on a 6-months' basis for the enforcement of migratory waterfowl regulations, have been transferred to rodent-control activities for the summer months until their services will again be needed on enforcement work. One deputy agent has been employed on shelterbelt work, and one in Arizona and another in New Mexico are in regular rodent-control field parties.

Returns from Field Trip.--D. D. Green left Washington on March 18 for an extended tour of inspection in North Carolina, Florida, Alabama, Mississippi, Texas, Oklahoma, and Indiana. He inspected rodent and predatory-animal control programs and interviewed personnel of the Bureau relative to the prosecution of their co-operative undertakings and future plans to be carried out. The opportunity was also offered to Mr. Green on this trip to inspect the Swanquarter and Lake Mattamuskeet Refuges and also to investigate rodent and predatory-animal problems on the recently acquired Wichita National Game Preserve in Oklahoma. Mr. Green returned to Washington on April 7.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., July-September 1935

Nos. 7-9

1885--FIFTIETH ANNIVERSARY NOTES--1935

My Early Days in the Biological Survey

By Vernon Bailey, Chief Field Naturalist, Retired

My official connection with the Biological Survey, then the Division of Economic Ornithology and Mammalogy, under Dr. C. Hart Merriam, began on May 10, 1887, but for several years prior to that time, at my home near Elk River, Minn., I had been collecting specimens of mammals for Dr. Merriam and keeping bird-migration records for W. W. Cocke and Otto Widmann. These notes were later used in the bulletin on Bird Migration in the Mississippi Valley, published in the Division in 1888 as Bulletin No. 2, and still later used as a basis for notes on the distribution of birds in check lists and other standard books on ornithology.

Like many young naturalists, I had begun at home by mounting birds and collecting sets of eggs, but soon found that the mammals were less known and more difficult to obtain and study. Learning then that Dr. Merriam, of Locust Grove, N. Y., was making a collection and could identify specimens for me, I wrote and offered to send him specimens if he would tell me the names of them. After he had accepted my proposition, I devoted much of my spare time to helping him, and this led to a lifelong friendship and to the thorough training that he later gave me in field work for the Biological Survey. The mere fact that I was doing 10 to 12 hours of hard work on the farm each day did not interfere seriously with my collecting and making up hundreds of specimens, and the criticism and training given me by Dr. Merriam were keenly appreciated and eagerly followed.

At that time no naturalist had ever come my way. I had few books, and my sources of information and interest were the birds and mammals, reptiles, fish, and plants around me. My father and older brother, like most of the pioneers of that borderland, were hunters and trappers as well as farmers and knew in a general way much about the game and fur-bearing mammals, the birds, fishes, and trees, but I was ambitious to know them all, even the small birds and tiniest shrews. I had my first single-barreled shotgun when 8 years old and at 10 was shooting ruffed grouse and passenger pigeons and trapping muskrats. At 15 I was using a double-barreled shotgun and shooting ducks and prairie chickens on the wing. At 18 I killed my first deer and at 20 my first bear. By that time I had learned to mount specimens of birds and mammals and had made a small collection of my own. By making small tin box traps I was able to catch even mice and shrews and to obtain representatives of practically all of the small, obscure mammals around me.

When Dr. Merriam came to Washington in 1886 he asked if I would go on a collecting trip farther west to study the birds and mammals, and soon after the snow was gone the next spring I received my first official appointment, signed by Commissioner Norman J. Colman and dated May 10, 1887, with instructions to proceed at once to Round Lake, Minn., where the yellow-headed blackbirds were pulling up most of the sprouting corn. From there I was to go to various localities in Iowa, Dakota, western Minnesota, Manitoba, Montana, Wyoming, and Nebraska to work out problems in economic ornithology and mammalogy and gather such specimens as were necessary in identifying all of the birds and mammals found. A full list of the species collected and noted and the localities visited on this trip may be found in the annual report of the Division for that year, and most of the specimens are now in the U. S. National Museum. The Department of Agriculture paid me the munificent salary of \$40 a month and necessary traveling expenses while on the trip, and my notebook shows the expenses running from \$40 to \$60 a month.

Not until August 1888 did I meet Dr. Merriam, at Ogden, Utah, where I was collecting specimens. He was returning from a trip to the west coast, and we had only part of a day together there. A year later, however, I had the great joy of working with him in the survey of the San Francisco Mountain region of Arizona, where the problems of distribution from the bottom of the Grand Canyon to the snow-patched mountain peaks gave me my first clear picture of life zones as affected by altitude.

Later we had many trips together, in Idaho in 1890, Death Valley in 1891, Oregon in 1896, Mount Rainier and the Olympics in 1897, Mount Shasta in 1898, the Trinity Mountains in 1899, the high Sierra with John Muir in 1900, the Cuyamaca Mountains in 1907, the San Gabriels in 1909, and elsewhere at various times since.

In our years of field work together we had much to exchange on observations and knowledge in general gained from far and near, and in the museum collections we worked both together and separately on groups of mammals in the effort to assemble more complete information on the characteristics of the native fauna of North America.

Our collections and our reports on relationships, habits, and distribution of mammals, and zonal distribution of animals and plants, are matters of record, but my greatest contribution to the natural history of North America will always be the training given me by Dr. Merriam, which has been passed on to many young members of the Biological Survey and other field naturalists of the country.

GENERAL NOTES

Water Resources Committee Organized.--Mr. Darling is one of 11 members of a Water Resources Committee, the organization of which was announced on July 30. The committee is engaged in outlining a long-range plan for the more effective use of all the water resources of the nation and for continuance and application of the policies set forth in the report of the Mississippi Valley Committee and the December 1934 report of the National Resources Committee.

Speaks to Detroit Adcraft Club.--The wildlife problem of the United States is one of "restoration with a 200-year handicap," Mr. Darling told the members and guests of the Adcraft Club in Detroit, Mich., on September 28. The chief urged his audience to promote a united federation of sportsmen, and he pointed to the American Wildlife Institute as a nucleus.

Warns Against Overconfidence.--Speaking at the Adirondack Camp dinner at Lake Placid, N. Y., held on September 13, in connection with the State's 50-years-of-conservation celebration, Mr. Darling sounded a warning against overconfidence on the part of conservationists. "While conservation galore," said the Chief, "is being applied to a few thousand acres here and there, civilization's mangle is eating away Nature's epidermis and rapidly reducing the great body of our country to deserts. So much popular sentiment has been recruited to the cause of conservation in recent years, so many promising proposals have been launched, so much enthusiasm has been generated, that I have a haunting fear that those who sit at home and dream that conservation is being realized may not know how little the organized agencies for restoration measure up to the job ahead."

On September 21 Mr. Darling spoke in Columbus, Ohio, at a national forum on country-life programs held under the auspices of the American Country Life Association.

Associate Chief Represents Bureau in West.--Mr. Henderson represented the Biological Survey at the annual meeting of the International Association of Game, Fish, and Conservation Commissioners held in Tulsa, Okla., September 12 and 13. He spoke on the research program of the Bureau and, substituting for Mr. Darling, who was unable to be present, delivered an address on the waterfowl situation. On September 4 Mr. Henderson had spoken on behalf of Mr. Darling at a meeting of the Western States Game Protective Association in Santa Fe, N. Mex. Earlier, during an inspection trip that began on July 22, he had visited Bureau field stations in Pacific and other Western States and in the Plains States, where he visited several of the areas being developed in the restoration program.

Assists Empire State Investigators.--W. L. McAtee spent the period August 27 to September 3 in New York State during which he discussed with Gardiner Bump, superintendent of game for the State Department of Conservation, and his assistants, the outline and parts already prepared of the final report on their ruffed grouse investigation; inspected with them projects in environmental improvement for waterfowl, grouse, and deer; and conferred with officials of the New York State Museum and the American Humane Society.

Sam G. Anderson, member of the Advisory Board, Migratory Bird Treaty Act, and internationally known leader in conservation, died on June 22 after a prolonged illness. Mr. Anderson was prominent among the organizers of the Gopher Campfire Club and was a founder of the Minnesota Game Protective League, of which he was for many years the head.

Frank Harris Hitchcock, Postmaster General during the Taft administration whose death in Tucson, Ariz., on August 5 attracted nation-wide attention, was at one time an employee of the Biological Survey, serving from November 17, 1891, until December 1, 1892. He had a life-long interest in ornithology. E. A. Preble, recently retired senior biologist, whose appointment in the Bureau was the result of a brief acquaintance with Mr. Hitchcock, says: "Hitchcock's genius for organization was early reflected in his official work. As an example he was the prime mover in retiring the cumbersome system of giving the skull of a mammal specimen a number different from that of the skin. It is impossible to estimate the saving in time and the gains in accuracy that have resulted since mammal skull No. 50,000 could be instantly recognized as the one that belonged to the skin of the same number. Had he accomplished nothing else while in the Survey, this reform alone would have paid many times over for his services."

South African Praises Bureau.--"In order to carry out a progressive program we should take our clue from the Biological Survey of the United States of America," says Austin Roberts of the Transvaal Museum, Pretoria, South Africa, in his recent report of a study of American institutions concerned with higher vertebrate zoology, which was arranged for by the Carnegie Corporation of New York. "Although the problems to be solved were not so pressing nor so complex as they are in South Africa, the Biological Survey was established in 1885 and has been a blessing ever since. Not only has it been able to investigate economic problems relating to birds and animals, but it has been the training ground for hundreds--if not thousands--of scientific workers, some of whose investigations have subsequently even extended into other continents. These trained officials have applied the knowledge they have acquired in the Biological Survey to practical purposes in all manner of ways, collecting material for study, studying that material for classification and purely scientific purposes, preparing it for public exhibition to the best effect in museums, supplying information on the life history of the species to the public, in scientific and popular literature, and to schools, rendering advice and even supplying the personnel for the conservation of wildlife, whether for the State or private purposes. It is therefore not surprising to find how much that department has expanded in recent years, as realization of the benefits it conferred on the nation gradually developed." Mr. Roberts devotes one chapter of his 68-page report to a history and description of the Bureau. He concludes that "the establishment of a similar institution in South Africa is essential if progress is to be made in the diverse investigations we must sooner or later undertake."

ADMINISTRATION

Additional Funds Provided for Continuing Refuge Program.--The act of Congress of June 15, 1935, making direct appropriation to the Department of Agriculture of \$6,000,000, good until expended, for continuing the program of acquiring refuge lands, reads as follows: "There is hereby appropriated out of the unexpended balance of the sum of \$3,300,000,000 appropriated by the Act of June 16, 1933 (48 Stat. 274), making appropriations to supply deficiencies in certain appropriations for the fiscal year ending June 30, 1933, and for other purposes, the sum of \$6,000,000, which shall remain available until expended, to enable the Secretary of Agriculture to

acquire by purchase or otherwise such lands as may be necessary in his opinion adequately to provide for the restoration, rehabilitation, and protection of migratory waterfowl and other wildlife and to erect and construct thereon and in connection therewith such buildings, dikes, dams, canals, and other works as may be necessary; and in the execution of this Act the Secretary of Agriculture is authorized to make such expenditures for personal services in the District of Columbia and elsewhere as he shall deem necessary."

Becomes Head of Auditing Unit.--Effective June 1, Carey G. Cruikshank succeeded as head of the auditing unit Guy W. Lane, who had been transferred to the Division of Game Management. Mr. Cruikshank has been with the Bureau since December 16, 1933, when he was appointed in connection with work under NRA projects.

Appointed.--Miss Gladys E. Marine has been appointed by transfer from the AAA, effective July 15, as assistant clerk-stenographer to assist Miss Edith J. Smith with the budget and apportionment work. Prior to her employment by the AAA, Miss Marine had served with the Bureau of Immigration and Naturalization of the Department of Labor.

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" series:

- No. 36. Ownership of furniture moved into Federal buildings. (June 15.)
- No. 37. Restriction of expenditures for maintenance, upkeep, and repair of Government-owned motor-propelled passenger-carrying vehicles. (June 18.)
- No. 38. Appointments on emergency rolls. (June 24.)
- No. 39. Transportation requests. (June 27.)
- No. 40. Submission of reimbursement vouchers in duplicate. (July 11.)
- No. 41. Per diem rates for fiscal year 1936. (July 17.)
- No. 42. Maintaining records of travel expenses for use in preparing income tax returns. (July 17.)
- No. 43. Service station procurement of gasoline. (July 23.)
- No. 18. Amendment Nos. 1-3. (July 1, Sept. 23, and Sept. 28.)
- No. 21. Amendment Nos. 1-2. (June 4 and Sept. 9.)
- No. 21. Amendment No. 2. (June 8.)
- No. 34. Amendment Nos. 1-2 (July 1 and Sept. 23.)
- No. 36. Amendment No. 1. (June 28.)
- No. 39. Amendment No. 1. (Aug. 2.)
- No. 44. Accountability for Government bills of lading. (Aug. 9.)
- No. 45. Procurement of particular makes of tires. (Aug. 12.)
- No. 46. Revision of Standard Forms No. 44 and No. 1066. (Aug. 21.)
- No. 47. Personal liability for injuries and property damage; automobile insurance available to operators of Government-owned or rented automobiles, trucks, or tractors. (Aug. 23.)
- No. 48. Preparation of vouchers Form 1012 and Form 1034. (Sept. 26.)
- No. 49. Availability and non-availability for certain purposes of funds included in special appropriations and emergency allotments of the Bureau. (Sept. 27.)

PUBLIC RELATIONS

Supervises Bureau Exhibit at Camp Perry.--Colonel Sheldon attended the National Rifle Matches at Camp Perry, Ohio, in September at the invitation of the officers of the National Rifle Association. Through the courtesy of Colonel Short, executive officer of the camp, moving picture films showing the various conservation activities of the Bureau were made a part of the educational and recreational program of the camp. A representative of the Remington Arms Co., also arranged a daily program in the Remington building to show other Biological Survey films. All shows were well attended, and a great deal of interest was manifested, not only in the pictures but also in the descriptive material on display in the Survey's building on Commercial Row. At the matches at Camp Perry there assemble what is probably the greatest gathering of sportsmen in America. It was anticipated that, during the time between the camp's opening on September 2 and its close on September 20, about 6,000 persons would attend the matches. Since nearly every one of these visitors is deeply interested in wildlife conservation the opportunity afforded the Survey to acquaint the public with its projects and problems is an exceptional one. It was Colonel Sheldon's first visit to Camp Perry since 1915, when he was a member of a Service Rifle Team.

Conducts Column for "The Sportsman".---With the August issue of "The Sportsman," Colonel Sheldon became, in his own words, "more or less responsible for the good conduct" of the periodical's "Guns and Game" department. "It shall be our earnest endeavor," he wrote on the column's first appearance, "to avoid being contentious; we shall try to be mild-mannered, gentle, and courteous and to prepare these columns after the fashion of a good British buffet breakfast. The reader, if any, who doesn't like our equivalent of deviled kidneys can take his place along to the kippers, or the eggs and bacon." The first column included discussions of the shore-bird problem, muzzle-loading rifles, and skeet and shotgun ballistics.

Broadcasts on New Regulations.---Howard Zahniser spoke on "This Year's Duck-Hunting Privileges" during the Conservation Day program on the National Farm and Home Hour, August 2. After outlining the changes in regulations he pointed out that "one of the year's duck-hunting privileges is that of joining in the movement to restore the waterfowl." "The public, as never before," he said, "is alive to the importance of this phase of conservation, and the hope now is that we Americans have definitely set our faces toward the restoration of this once abundant resource."

Prepares for Exhibit at Richmond.---Lisle Morrison went to Richmond, Va., the last week in September to make preparations for a wildlife exhibit at the Virginia State Fair, which began on September 28. Arranged by the Virginia Commission of Game and Inland Fisheries in cooperation with the Survey, the exhibit had been planned to demonstrate the waterfowl-restoration work of the Bureau. It was to include also two sets of white-tailed deer of the East and the mule deer of the West in typical scenes.

Department Workers to See Bureau Movies.--- Biological Survey motion pictures will be shown at the first of a new series of Department get-acquainted meetings to be held in the South Building auditorium October 23 at 8 p. m.

Official Publications, copies of which may be obtained by Bureau members from the Division of Public Relations, have been issued as follows:

- Alaska-Yukon caribou, by Olaus J. Murie, biologist, Division of Wildlife Research. North American Fauna No. 54, 93 pp., illus. June 1935. Received Aug. 13.
- Migratory Bird Treaty Act regulations. Service and Regulatory Announcements--B.S. 81, 8 pp. Aug. 1935. Received Aug. 20. (Superseded by S.R.A.-B.S. 83, in press.)
- Text of Federal laws relating to the protection of wildlife. Service and Regulatory Announcements--B.S. 82, 20 pp. Aug. 1935. Received Sept. 7.
- Waterfowl hunters--attention: Buy a stamp before you shoot. Poster No. 55 (Bi). 1 p. Issued July 1, 1935. Received July 17.
- Seasons for migratory game birds, 1935-36. Poster No. 56 (Bi). 1 p. Issued Aug. 31, 1935. Received Sept. 13.
- The present plight of the Jackson Hole elk, by H. P. Sheldon, Chief, Division of Public Relations; Olaus J. Murie, biologist, Division of Wildlife Research; and W. E. Crouch, senior biologist, in Charge Section of Refuge Administration, Division of Game Management. Mimeographed Leaflet BS-12, 4 pp. July 1935. Received Aug. 8.
- Protecting grain crops from damage by wild fowl, by E. R. Kalmbach, senior biologist, Section of Food Habits, Division of Wildlife Research. Mimeographed Leaflet BS-13, 7 pp. Aug. 1935. Received Sept. 14.
- Planting for wildlife in the corn belt, by W. L. McAtee, principal biologist and technical adviser, Office of the Chief. Mimeographed Leaflet BS-14, 2 pp. Aug. 1935. Received Sept. 16. (Supersedes Bi-1326).
- Planting for wildlife in the cotton belt, by W. L. McAtee, principal biologist and technical adviser, Office of the Chief. Mimeographed Leaflet BS-15, 2 pp. Aug. 1935. Received Sept. 17. (Supersedes Bi-1327.)
- Bird refuges and big-game preserves administered by the Bureau of Biological Survey. Compiled in the Divisions of Game Management and Migratory Waterfowl. Mimeographed Leaflet BS-16, 8 pp. Aug. 1935. Received Sept. 9.
- Wildlife of the Atlantic coast salt marshes, by W. L. McAtee, principal biologist and technical adviser, Office of the Chief. Mimeographed Leaflet BS-17, 22 pp. Sept. 1935. Received Sept. 10.

The Yearbook of Agriculture for 1935, containing the following articles, was received on July 2 (separates not yet printed):

- Botulism is a factor in the decrease of western waterfowl, by E. R. Kalmbach, senior biologist, Section of Food Habits, Division of Wildlife Research. pp. 140-143.
- Fur scarcity through overtrapping impends; conservation needed, by F. G. Ashbrook, principal biologist, in Charge Section of Fur Resources, Division of Wildlife Research. pp. 218-220.
- Game as a farm crop emphasized by agricultural adjustment, by H. P. Sheldon, Chief Division of Public Relations. pp. 220-221.
- Game management and forest protection are related tasks, by E. A. Goldman, senior biologist, Division of Wildlife Research. pp. 221-223.

Predators and rodents are factors in the spread of disease, by A. M. Day, senior biologist, in Charge Section of Predatory Animal and Rodent Control, Division of Game Management, and J. E. Shillinger, senior veterinarian, in Charge Section of Disease Control, Division of Wildlife Research. pp. 284-286.

Waterfowl breeding grounds of far north now poorly tenanted, by E. A. Preble, Senior biologist, Division of Wildlife Research. pp. 326-328.

Waterfowl problems clarified by study of gunning practices, by Clarence Cottam, senior biologist, in Charge Section of Food Habits, Division of Wildlife Research. pp. 328-330.

Waterfowl-restoration program undertaken by the Government, by Rudolph Dieffenbach, senior land valuation engineer, Chief, Division of Land Acquisition. pp. 330-331.

Press Information items, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

E. A. Preble, veteran naturalist, is retired. Press statement 10-36. Released July 2.

More range and fewer elk to solve Jackson Hole problem. Press statement 157-36. Released July 29.

30 days of fall duck hunting allowed by new regulations; President approves open season with drastic restrictions to reduce annual kill. Press statement 186-36. Released August 1.

Baiting, now banned, led to killing of more than 660,000 ducks in '34. Press statement 227-36. Released August 9.

Dove season to open on September 21 in South. Press statement 368-36. Released August 29.

Mourning-dove rules held constitutional; court declares conservation purpose transcends sport of hunting. Press statement 406-36. Released September 6.

CCC to restore Valentine Lakes in Nebraska as bird-breeding area. Press statement 426-36. Released September 11.

Federal bird laws upheld by courts. Press statement 445-36. Released September 13.

Medicine Lake, Montana, new wildlife sanctuary. Press statement 479-36. Released September 19.

Ducks and fish get better break on Souris River, North Dakota. Press statement 512-36. Released September 25.

White River refuge in Arkansas is winter sanctuary for ducks. Press statement 532-36. Released September 27.

Federal dove seasons changed in 14 States. Press statement 535-36. Released September 27.

Louisiana heron passes fourteenth "milestone." Clip sheet No. 886. Released June 23.

Biggest loss to trout fry not from birds--but fish. Clip sheet No. 887. Released June 30.

Disreputable starling enemy of Jap beetles. Clip sheet No. 894, Released August 18.

More game "planted" in national forests. Clip sheet No. 895. Released August 25.

Indians may have had the first game law. Clip sheet No. 896. Released September 1.

Shotguns will frighten noisy birds from roost. Clip sheet No. 896. Released September 1.

Field mice seem to keep regular hours. Clip sheet No. 899. Released September 22.

European starling seeks new country to conquer. Clip sheet No. 899. Released September 22.

Texas longhorns rank with big-game animals. Clip sheet No. 899. Released September 22.

Darling's duck stamps may be sold to anyone. Clip sheet No. 900. Released September 29.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, C. M. The protectors of our game and fish resources. Minn. Conservationist No. 26, pp. 9, 22. July 1935.

-----The last of the caribou. Natl. Waltonian 3 (3): 8-9, illus. Sept. 1935.

Burleigh, T. D. Notes on the winter bird life of the Delaware coast. Auk 52: 317-318. July 1935.

Cottam, Clarence. Winter bird notes from coastal North Carolina. Auk 52: 318-319. July 1935.

-----The present eelgrass situation. Plant Disease Reporter 19 : 230-231. Sept. 1, 1935.

Couch, L. K. Additional elk planting information. Murrelet 16 : 42. May 1935.

Darling, J. N. Save our game! Sci. Amer. 153: 117-119, illus. Sept. 1935.

-----The duck season. Sportsman 18 (2) : 20-22, 56, 57, illus. Aug. 1935.

-----Objectives and functions of the American Wildlife Institute. Amer. Field 124 (35) : 196-197. Aug. 31, 1935.

-----Washington wild life. Saturday Evening Post 208 (12) : 14-15, 61, 62, 64, 65, illus. Sept. 21, 1935.

Gabrielson, Ira N. Black pigeon hawk in eastern Oregon. Murrelet 16: 39-40. May 1935.

-----A Nevada record of the Harris's sparrow. Murrelet 16 : 41. May 1935.

-----Destruction of red phalaropes. Murrelet 16 : 27-28, illus. May 1935.

-----The antelope situation. Amer. Game 24 (4) : 54, 59, illus. July-Aug. 1935.

Goldman, E. A. A new brown mouse of the genus Scotinomys from Mexico. Biol. Soc. Wash. Proc. 48 : 141-142. Aug. 22, 1935.

Hanson, K. B., and McBlain, W. G. Jr. Use of elevated wire floors in controlling lungworm infestation in foxes. Jour. Amer. Vet. Med. Assoc. 86 (n. s. 39) : 463-473, illus. Apr. 1935.

Jackson, H. H. T. Sheep and bear trails, by John P. Holman. With an introduction by Robert A. Bartlett. New York: Frank Walters, Grand Central Palace. XVI, + 211, frontispiece and 23 plates in text. 1933. (Review.) Jour. Mammal. 16 : 157. May 15, 1935.

Jewett, S. G. The man-o'-war bird off the Oregon coast. Condor 37: 212-213. July-Aug. 1935.

Kalmbach, E. R. Will botulism become a world-wide hazard to wild fowl? Jour. Amer. Vet. Med. Assoc. 87 (n. s. 40) : 183-187, illus. Aug. 1935.

Kellogg, C. E. Rabbit weight statistics--young rabbits and does. Amer. Rabbit Jour. 5 : 114-115, illus. Aug. 1935.

Kelso, Leon. A new species and two new varieties of Glyceria. Rhodora 37 (439): 262-263. July 1935.

- McAtee, W. L. Duration of insect fragments in the stomachs of birds. Murrelet 16 : 29-32. May 1935.
- Endocrines and plumage in Brewer's blackbird. [Failure of Theelin and Thyroxin to affect plumage and eye-color of the blackbird, by C. H. Danforth and John B. Price. Proc. Soc. Exp. Biol. Med. 32 (5), 675-678. Feb. 1935.] (Review.) Auk 52: 340. July 1935.
- Mendall on fish-eating birds in Maine. [The relationship of certain sea birds to the fishing industry of the State of Maine, by Howard L. Mendall, Bul. Dept. Sea and Shore Fisheries, apparently repaged, 1-28, illus 1935.] (Review.) Auk 52 : 337-338. July 1935.
- Economic ornithology in recent entomological publications. Auk 52 : 335-337. July 1935.
- Value of field observation in economic ornithology. Wilson Bul. 47 : 198-204. Sept. 1935.
- Text-book facts on protective coloration. Amer. Nat. 69 (723): 374-378. July-Aug. 1935.
- Miller, J. P. The correlation of game and forest management in New England. Amer. Game Conf. Trans. 21 : 309-312. 1935.
- Moore, A. W., and Ward, Justus C. The effect of altitude on the action of drugs, I: Strychnine. Jour. Amer. Pharm. Assoc. 24: 460-464. June 1935.
- Morley, L. C. Recent observations on game farm losses. Amer. Game Conf. Trans. 21: 232-237. 1935.
- Oderkirk, G. C. Ground hog control on Indiana farms not a difficult task. Outdoor Indiana 2 (7): 23, 28, illus. Aug. 1935.
- Sheldon, H. P. Guns and game: The shore-bird problem; muzzle-loaders redivivus; skeet and shotgun ballistics. Sportsman 18 (2) : 58, Aug. 1935.
- Shillinger, J. E. Diagnosing disease in game. Amer. Game Conf. Trans. 21 : 418-424. 1935.
- Urinary calculi in fur animals. Black Fox Mag. 19 (4) : 5-6. Aug. 1935.
- Taylor, W. P. (With C. T. Vorhies, Univ. Ariz., and P. B. Lister, Southw. forest and range sta.) The relation of jack rabbits to grazing in southern Arizona. Jour. Forestry 33: 490-498, illus. May 1935.
- Some animal relations to soils. Ecology 16 : 127-136. Apr. 1935.
- Zahniser, Howard. In August, Nature Mag. 26 : 71. Aug. 1935.
- September, Nature Mag. 26 : 135. Sept. 1935.

WILDLIFE RESEARCH

Studies Conditions in the Field.---Dr. Bell has recently visited points in South Carolina, North Carolina, Virginia, Georgia, and Florida to study wildlife problems and confer with State officials and other concerned with the production of game and fur-bearing animals. He was accompanied on much of the investigation by Clarence Cottam, I. T. Bode, and Mr. Stoddard (See p. 118).

Appointed Wildlife Conservationist.---I. T. Bode, former State game warden for Iowa, who was appointed wildlife conservationist in the Division of Wildlife Research on August 1, is assisting in developing research, demonstration, and educational work in connection with the recently developed program for cooperation with selected land grant colleges, State game departments, and the American Wild-

life Institute. Mr. Bode spent some time in Washington familiarizing himself with the organization and work of the Biological Survey and in formulating material for use in developing this cooperative program. He later returned to his headquarters at Des Moines, Iowa, and attended the meeting of the International Association of Game, Fish, and Conservation Commissioners, at Tulsa, Okla., September 12 and 13, where he held a number of conferences with State game officials in getting the cooperative program under way.

Completes CCC Study.--Arthur Einarson, who has been employed for some months by the U. S. Forest Service to work under the direction of the Biological Survey in checking up on field operations of CCC camps as they affect wildlife on the national forests, completed an extended series of visits to several and made arrangements for appointment of a number of wildlife technicians for work in connection with the camps. Appointed an associate biologist in the Division of Wildlife Research effective September 21, he left Washington on September 16, for his new headquarters at the Oregon Agriculture College, at Corvallis, where he will serve as leader of the cooperative project in research, demonstration, and educational work in cooperation with the College, the Oregon Game Commission, and the American Wildlife Institute.

Virginian Appointed.--Charles O. Handley, formerly connected with the Virginia Commission of Game and Inland Fisheries, at Richmond, was appointed associate conservationist, effective September 9. He has now established headquarters at the Virginia Polytechnic Institute, Blacksburg, Va., where he will serve as leader of the research, demonstration, and educational program being launched in cooperation with the Virginia Polytechnic Institute, the Virginia Commission of Game and Inland Fisheries, and the American Wildlife Institute. Virginia is the first State to complete negotiations for the cooperative work required in setting up this important wildlife program.

Appointed for Work in Iowa.--Logan Bennett, who has been employed on the waterfowl restoration program was appointed associate biologist, effective September 23. He has reported at Ames, Iowa, for duty as leader of the program of research, demonstration, and educational work that is being launched in cooperation with the Iowa State College, the State Game and Fish Commission, and the American Wildlife Institute.

Complete Study.--O. J. Murie and H. H. Hoyt have completed their study of conditions on the proposed Fort Peck public-domain refuge area in Montana and have submitted their report outlining a program of wildlife management and restoration. Upon completion of this work they reported at the Wichita Mountains Wildlife Refuge, Okla., where they will engage in developing a research and management program.

Cooperates with Resettlement Administration in Study.--C. M. Aldous recently concluded a series of studies in Nebraska, North Dakota, and South Dakota, at the request of the Resettlement Administration to cooperate with the regional and State planning boards in developing plans for protection and management of wildlife, including game and fur-bearing animals, on lands being acquired under the emergency relief program.

Returns to California.--L. J. Goldman in August completed his investigations of waterfowl conditions on important breeding grounds in the far northern parts of Alberta, Saskatchewan, and Northwest Territories, and has returned to his headquarters in Berkeley, Calif., where he is completing reports on his findings.

Survey Superior Forest.--During May, O. J. Murie, H. Harrison Hoyt, and C. M. Aldous continued a survey of the Superior National Forest as a further contribution to the work of the Biological Survey in developing the wildlife management plan for this forest. Reports and maps were prepared giving valuable information regarding the location and abundance of game and fur animals and indicating areas in which special improvement work that was recommended might be undertaken on the basis of information now available.

Meets with Committee on Grasslands Ecology.--Early in June Dr. Walter P. Taylor attended sessions of the Committee on Ecology of Grasslands of the National Research Council in North Dakota. Meetings were held at Fargo, Dickinson, and Medora. Emphasis was placed on the importance of saving such areas of natural grasslands as are now available and of efforts to restore the natural grass vegetation on selected experimental areas widely distributed in representative areas in the United States. The importance of wildlife administration on grasslands also was stressed.

Musk Ox Herd Doing Well.--Charles H. Rouse left Fairbanks, Alaska, early in July, with a shipment of 2 adult musk ox bulls and 3 cows enroute to Nunivak Island, where the animals will be liberated. This shipment made in cooperation with the Alaska Game Commission, which provided the shipping expenses, is the first step in the program to distribute animals in suitable areas, with a view to building up local herds. This has been made possible now that the herd has been carried successfully through the growing period to maturity, when young are being produced each year. Five calves born last year are now in a vigorous condition and have made a growth superior to that shown by the animals of corresponding age originally introduced. Twelve calves were born this year, two of them being stillborn, thus giving an addition of ten healthy active calves to the herd. This addition brings the herd up to a number in excess of that originally shipped from Greenland.

Associates Honor Preble, Retiring after 43 Years.--On June 28 Edward A. Preble was honored at a farewell gathering of members and retired members of the Survey in the offices of the Chief and presented with a testimonial brochure and a gift of books on the occasion of his retirement from the Federal service. Mr. Preble, who had served the Bureau for 43 years, beginning in his 21st year, on April 1, 1892, retired on June 30. Replying to the presentation of the brochure by W. L. McAtee, and the gift by Howard Zahniser, in behalf of a committee that also included Dr. H. H. T. Jackson, Mr. Preble spoke reminiscently of his service with the Biological Survey. He called particular attention to the extensive data collected by himself and those with whom he had been associated and said that his parting wish was that the Bureau in the future would be guided in its actions and decisions by the facts established by these data. The testimonial brochure, including photo-

graphs made by Mr. Preble during his early investigations in Canada and calling particular attention to his North American Fauna No. 27, was dedicated as follows: "To Edward Alexander Preble--life-long naturalist, notable explorer, and skilled collector; thorough scientist, accomplished writer, and earnest conservationist; a character staunch, genuine, and sincere; a friend generous and true--this testimonial brochure and the accompanying gift, the complete works of Henry David Thoreau, John Burroughs, and John Muir, are tendered by his associates in the Bureau of Biological Survey in token of high esteem, with good wishes for many years of happy and productive endeavor as a writer on nature and in the work of conservation to which he has dedicated himself."

The Biological Survey, said a Bureau statement issued on July 2, deeply regrets the necessity for Mr. Preble's retirement. His regular presence at his office will be sorely missed; but his desk will still be available to him, and it is expected that he will be a frequent Bureau visitor. Relieved of his routine duties for the Government, Mr. Preble will be able to devote more of his time to writing; and he has accepted the position of associate editor of Nature Magazine, with which he has been connected as consulting naturalist since 1924. He will maintain his residence in Washington and thus be readily available to the Bureau as a consultant and adviser. The results of most of Mr. Preble's early work are recorded in scientific publications of the Bureau, most notable of which is his 574-page North American Fauna No. 27, "A Biological Survey of the Athabaska-Mackenzie Region." Published in 1908, this work was based on investigations by Mr. Preble and his assistants in 1901, 1903, and 1904. In addition to making a comprehensive report on the natural history of the region, Mr. Preble also contributed to its geography, a contribution recognized a few years ago by the Canadian Government in naming for him Preble Island in Great Slave Lake and Preble Bay in Great Bear Lake. Earlier, in 1900, Mr. Preble had conducted a biological investigation of the Hudson Bay region that formed the basis for his North American Fauna No. 22, published in 1902. His early experience in the north country included also a 6-months canoe journey in 1907 to the Barren Grounds about Aylmer Lake, northeast of Great Slave. This expedition, during a leave of absence granted for the purpose, was made with Ernest Thompson Seton, who reported the results in "The Arctic Prairies". In northern British Columbia, also, Mr. Preble made extensive natural-history explorations, in 1910 and 1913. The first of these, from July to November, involved a traverse by boat, pack-horse, raft, wagon, and sled from the mouth of the Stikine on the Pacific coast to Edmonton on the Saskatchewan. The 1913 trip was in the country immediately south of the route followed through the mountains of British Columbia three years before. The results of these two trips were not published by the Department but have been used in systematic and faunal reports issued by other agencies. Last year Mr. Preble again investigated the Athabaska region, in connection with the Bureau's studies of waterfowl conditions throughout the continent, and he was one of the authors of Miscellaneous Publication No. 210, "Status of Waterfowl in 1934." A special study by Mr. Preble in 1911 and published in Biological Survey Bulletin No. 40, "Report on Condition of Elk in Jackson Hole, Wyoming, 1911", was the basis for the purchase of the Elk Refuge and its administration by the Biological Survey. In 1914 Mr. Preble was made a member of a special commission to study the status of the

great herds of fur seals on the Pribilof Islands, in Bering Sea. The resulting report "Fur Seals and Other Life of the Pribilof Islands, Alaska, in 1914," of which Mr. Preble was a joint author, was published in 1915 as Document 820 of the Bureau of Fisheries and also as a Senate document. This report, it has been said, "marks an epoch in seal conservation." Though an "all-around" naturalist in a sense considered remarkable by his associates in the Bureau, Mr. Preble in his scientific work has been primarily a mammalogist. In 1899 he published a "Revision of the Jumping Mice of the Genus *Zapus*" as North American Fauna No. 15, and he has critically reviewed and assisted in the preparation of other scientific publications of the Bureau on both mammals and birds. His other official writings include a yearbook article published in 1931 entitled, "Muskoxen Brought from Greenland to Restock Alaska's Tundra Lands." He is a charter member of the American Society of Mammalogists, was for several years editor-in-chief of its Journal of Mammalogy, and is now one of the Society's two vice presidents. He is also a member of the American Ornithologists' Union and other scientific organizations and of several humane and wildlife protective associations. During the more recent years of his service Mr. Preble has been most deeply interested in matters pertaining to conservation, especially of the migratory birds. He has served as consultant and adviser in the formulation of Bureau policies and protective regulations, his extensive first-hand knowledge of conditions in the field combining with his personal concern for wildlife to make him especially valuable in this phase of the Bureau's work. Mr. Preble's extensive and detailed knowledge of nature and his ability as a critic have made him particularly valuable to the Bureau in connection with the preparation of reports, publications, statements, and information items of many kinds. Mr. Preble always took an active interest in THE SURVEY and for several years had read the issues in manuscript to check their biological accuracy. Though his writings are still available, the loss of his personal helpfulness will be seriously felt by his former associates.

Retired Naturalist Appointed Collaborator.--Vernon Bailey, former chief field naturalist of the Biological Survey who was retired in 1934, was on August 1 appointed as a collaborator to assist in certain field surveys where his exceptional knowledge of wildlife and wildlife food and cover requirements are especially helpful. During August he cooperated with others (A. R. Nelson and Dr. H. H. T. Jackson) in making a wildlife survey and management program for the Big Levels Game Refuge on the George Washington National Forest in Virginia (see p. 118).

Humane Traps Catch 5 Foxes in 5 Nights.--Mr. Bailey reports an interesting test of the humane leghold traps for taking foxes. Where red foxes were reported raiding poultry yards only 10 miles from the center of Washington, a few of these interesting new traps were set and 5 foxes caught in 5 consecutive nights. The first fox, after being photographed, escaped while being placed in a gunny sack, and two others were stolen, traps and all, by early passersby, but two were put in sacks and brought to Mr. Bailey's Washington home and kept there for study. All were held without injury or suffering. A collection of engorged woodticks was taken from the foxes by Dr. J. E. Shillinger, to be used in the inoculation of guinea pigs as a test for spotted fever and tularemia, and the food habits, tastes,

and preferences of the animals were studied. At first their preferences seemed to be for fried chicken bones and cooked green corn on the cob but they also enjoyed berries, peaches, melons, and a great variety of other foods. That foxes enter largely into the problems of game management and conservation generally is so well known that every bit of additional information is valuable, says Mr. Bailey. Fortunately, he explains, the value of fox fur helps to hold in check any great increase in their numbers, and the cash returns to the trappers probably equal the livestock losses of the farmers. This kind of adjustment, while not entirely new to the farmers, does not greatly appeal to them, Mr. Bailey observed.

Mammal Research

Studies Biological Survey Specimens.--One of the largest loans in number of specimens of a single species of mammal ever made by the Biological Survey was returned in July to the mammal laboratories by the Museum of Comparative Zoology of Harvard University, Cambridge, Mass. The shipment consisted of 838 skins and 907 skulls of the Alaskan meadow vole, Microtus operarius, which were loaned for the research of Raymond M. Gilmore.

Survey Has Monopoly on Black-Bear Heads.--Of the 40 record heads of black bears listed by the late Prentiss N. Gray in his "Records of North American Big Game", 39 are in the Biological Survey Mammal Collection. The largest of these measures 13 $\frac{1}{4}$ inches in greatest length overall and 7 $\frac{1}{4}$ inches in width across the zygomatic arches (an equivalent of skull width). Other skulls recorded of less length have widths up to 8 $\frac{1}{2}$ inches, there being eight of 8 inches or more width. No skull listed in the "Records", however, offers the combined length of 13 $\frac{1}{4}$ inches and width of 8 inches as exhibited in the skull of a black bear that was trapped by Roy Keller, trapper for the Biological Survey, October 1, 1934, on the Stump Creek drainage, Caribou National Forest, southeastern Idaho. In combined length and width this constitutes so far as known the record black bear head. The specimen, skin and skull, was turned in to the Biological Survey collection by the Division of Game Management, and has been entered in the catalog as No. 251488.

Distribution and Migration of Birds

Waterfowl Studies Made in Canadian Provinces.--Studies of waterfowl breeding grounds in Canada were carried on during the summer by five parties as follows: The northern part of the Prairie Provinces, Biologist Luther J. Goldman and U. S. Game Management Agent Charles Gillham; British Columbia, Biologist O. J. Murie and U. S. Game Management Agent Clifford L. Fretwell; southern Alberta and Saskatchewan, U. S. Game Management Agents Webster H. Ransom and M. J. Furness; southeastern Saskatchewan and Manitoba, Biologist C. M. Aldous and U. S. Game Management Agent L. J. Merovka; New Brunswick and Nova Scotia, Biologist Neil Hotchkiss and U. S. Game Management Agent Lee F. Brackett. The results were summarized in a second supplement to the Bureau's summary of the waterfowl situation this year. The summary, entitled "The Waterfowl Situation: 1934-35" and issued on June 15, was a 17-page discussion of the results of the last hunting season and the apparent prospects for this year. A 1-page supplement was issued on June 20, reporting that "preliminary reports . . . indicate that if normal precipitation continues through July a better hatch may be expected." on August 25 a detailed 6-page report was issued and entitled "Second Supplement to Report on Waterfowl Situation--1935: Results of the Breeding Season." All were mimeographed.

Banding Records and Returns Counted.--In preparing material for the Chief's annual report for the year ended June 30, 1935, it has been ascertained that a total of 249,829 birds were banded with 16,913 returns. A slight decrease from last year's total is attributed by Mr. Lincoln to the continued curtailment of the issuance of birdbanding permits, and also to the fact that many important stations have reported decreased populations of several species usually banded in large numbers. Waterfowl stations did, however, band a larger number of ducks and geese than in the fiscal year 1934.

Interesting Banding Returns Received.--The annual report from E. W. Ehmann, bird-bander at Lake Merritt, Oakland, Calif., shows a number of interesting longevity records as follows: On February 6, 1935, Mr. Ehmann retrapped 2 baldpates and 9 pintails that he banded in the winter of 1927 and 1928, also 1 pintail banded February 1, 1927. Other interesting returns that have been received since the last issue of THE SURVEY include those for the following birds: A pintail banded by Mr. Ehmann November 8, 1926, and shot December 30, 1934, at Marysville, Calif.; an osprey banded April 26, 1934, at Slaughter Beach, Del., and killed June 28, 1935, at Aulia, Venezuela, South America; a red-headed woodpecker banded June 23, 1926, at Battle Creek, Mich., and found dead at the same locality May 21, 1935; a white-faced glossy ibis banded June 26, 1932, at Los Banos, Calif., that fell injured from a flock flying over the town of Price, Utah, May 23, 1935; a herring gull banded July 18, 1924, at St. James, Mich., and found dead about May 15, 1935, at Glen Lake, Mich.; a fox sparrow banded November 10, 1932, at Amherst, Mass., and trapped by another cooperator on March 1, 1935, at Washington's Birthplace, Va.; a white-crowned sparrow banded May 8, 1934, at Jamestown, N. Dak., and captured about March 25, 1935, at Rancho Nuevo, Coachilla, Mexico; a white-crowned sparrow banded May 15, 1934, at Fredericton, New Brunswick, and caught in a mousetrap about March 30, 1935, at Cooter, Mo.; a black-crowned night heron banded June 9, 1925, at Bourne, Mass., and found injured about April 5, 1935, at Ocean View, Va.; and a ring-necked duck banded February 16, 1935, at Avery Island, La., and trapped and released at Thief Lake, Marshall Co., Minn., April 27, 1935. The Thief Lake cooperator who recaptured the ringneck banded in Louisiana also trapped a redhead April 29, 1935, which was banded April 18, 1926, at Ithaca, N. Y.

Lesser Snow Goose Recoveries Reported from Keewatin, N. W. T.--From 70 lesser snow geese banded on the Bay of God's Mercy, Southampton Island, Keewatin, Northwest Territories, by Thomas H. Manning, 14 recoveries have been received, all of which are from points in the vicinity of Port Arthur, Tex., with the exception of 1 which was reported from Louisiana.

Twice 13 Eggs in One Nest.--B. D. Wells, conservation commissioner, of Charleston, W. Va., reports the finding in Jackson County, W. Va., of a nest of the ruffed grouse containing 26 eggs. A careful check was kept on the nest, and all 26 eggs hatched out successfully. Latest reports indicate full survival with the chicks growing rapidly. The previous record was for a nest found in Connecticut with 23 eggs. It seems probable that in both cases the large complement of eggs was the product of two females, but the remarkable feature is that one bird could cover and incubate such a large number.

Food Habits Research

Inspects Turkey Areas.--Dr. Bell, Clarence Cottam, and I. T. Bode went to Georgetown, S. C., August 10 and inspected a proposed turkey area on the Santee River, after which they visited Bull Island to determine its possibilities as a turkey-management area. In company with H. L. Stoddard they then visited game-management projects in southern Georgia and northern Florida, and while in the region inspected conditions at St. Marks Migratory Bird Refuge and at the Savannah River Wildlife Refuge. They returned to Washington August 20.

Investigate Depredations of Purple Martins.--Dr. Bell, Mr. Cottam, and Mr. Bode during their inspection trip in August investigated reported annoyances and depredations of purple martins in the vicinity of Bainbridge, Ga. Apparently huge concentrations of these birds had made a roost near dwellings on the outskirts of the city and were an annoyance to the neighborhood. Before the party arrived, city officials, with the aid of the hose of the fire department, had driven the birds away.

Inspects Atlantic Coast Area.--Clarence Cottam left Washington, D. C., late in July and investigated the eelgrass situation in the coastal waters and bays of Maryland, Virginia, and North Carolina and made surveys of waterfowl food resources. In company with I. N. Gabrielson, he inspected several mosquito-control projects. Mr. Cottam was enthusiastic over the splendid spirit of cooperation that he found among mosquito-control interests. Late in August with Mr. Gabrielson he inspected an island near Wachapreague, Va., being considered as a waterfowl and upland-game area.

Return to Denver.--E. R. Kalmbach and C. S. Williams returned to Denver on July 30 from Cooking Lake, Alberta, after concluding their study of the crow problem in a typical waterfowl breeding area. The results of their investigations are expected to have an important bearing on crow control policies.

Assists in Migratory Waterfowl Program in Minnesota and Wisconsin.--F. M. Uhler early in August assisted in the Bureau's program of land acquisition in Trempealeau, County, Wis., and later made biological surveys of several prospective refuge sites in Minnesota. Enroute to Washington on his return Mr. Uhler inspected several aquatic nurseries in Wisconsin.

Inspects Big Levels Game Refuge.--A. L. Nelson in company with Dr. H. H. T. Jackson and Vernon Bailey spent the period of August 8 to 17 at the Big Levels Game Refuge in the Natural Bridge section of the George Washington National Forest, in Virginia. An inspection of the area was made with a view to recommending to the Forest Service means for the improvement of the existing game supply. Mr. Nelson had made an earlier inspection (June 25 and 26) of this refuge.

Conducts Plant-Control Studies on Blackwater Refuge.--F. M. Uhler late in July investigated conditions in the Blackwater Migratory Bird Refuge, near Cambridge, Md., in an effort to determine means of controlling and eradicating undesirable marsh vegetation on waterfowl areas. Special studies were made to determine the utility of chemical sprays.

Harvests Duck Foods for Experimental Plantings on Refuge Areas.--Between August 12 and 16 Neil Hotchkiss visited the Eastern Shore, where he supervised experimental transplantation of several bushels of eelgrass from Chesapeake Bay to the flats along the ocean side of the peninsula at Wachapreague. With the help of a crew of men from the Blackwater Refuge CCC camp he collected a quantity of salt-marsh bulrush (Scirpus robustus) seeds for use in establishing this valuable duck-food plant on certain migratory waterfowl refuges. In Delaware he made arrangements for the collection of a quantity of the seeds of four other waterfowl food plants.

Studies Duck Food Plants.--Theodore H. Scheffer has recently been studying duck food plants introduced into what were regarded as appropriate areas in the Northwest and has investigated areas where plantings have been made from time to time during the past few years. He has found that wild rice has largely failed to propagate, while wild celery has in most instances done exceptionally well. During the latter part of August Mr. Scheffer made a survey of the large lakes on the Olympic Peninsula for waterfowl food resources and general wildlife conditions. An effort was made to determine a means of improving existing conditions. During the first part of the month he had investigated waterfowl food resources in the area adjacent to Spokane, Pullman, and Walla Walla, Wash., and also cooperated with the Soil Conservation Service in appraising wildlife conditions and planning for their improvement.

Transferred to Washington Office.--Cecil S. Williams reported for duty at the Washington office on August 16. He will devote much of his time to special cooperative food habits studies. Mr. Williams was formerly located at the Denver office. Effective September 5, Franklin H. May also was transferred from Denver to Washington.

Inspects Bird Control Activities in California.--Johnson A. Neff during August inspected bird control activities in eight California counties with a view to bettering methods of control and suggesting means of preventing bird depredations.

Potomac Menace to Duck Feeding Grounds Discovered.--An important accomplishment of the Food Habits Section during the summer was the discovery and, what is hoped to be, complete elimination on the Potomac of one of the most serious marsh-plant pests known. While studying waterfowl food resources of the Potomac and conducting experiments on the elimination of water caltrop, Mr. Uhler observed on July 15 a small dense stand of giant cut-grass (Zizaniopsis miliacea) at Dogue Creek just south of Mount Vernon. The following day he with Mr. Cottam dug out all specimens of the plant that could be found. The plant, new to the District flora list, is a perennial with creeping rootstocks and one that is difficult to eradicate. It is one of the worst pests of the south and southeast in that it is hardy, adaptable, and often completely crowds out all desirable wild duck food plants in shallow waters and marsh areas. As a duck food plant, it is practically worthless. If similar action had been taken against water caltrop some fifteen years ago, the magnitude and expense of the present job of removing this pest might have been avoided. It is

not known how the cut-grass was introduced in the Potomac area, but it seems probable that it may have been brought in with plantings of well-known duck foods by sportsmen, possibly with wildrice. Another possible but rather improbable source of its introduction is by northward migrating waterfowl. Practical results of the Biological Survey's campaign to eradicate water caltrop in the Washington region are now evident in the waterfowl feeding grounds at the mouth of Roaches Run, Arlington County, Va. The active efforts of about 30 CCC boys, supplied through the cooperation of the National Capital Parks, have resulted in the removal of large patches of this destructive pest, which had already destroyed a large part of the natural food in that area. Experiments with chemical methods of controlling this aquatic weed are actively under way and much valuable information bearing on the ultimate control is being obtained.

Initiates Field Studies of Foxes.--In cooperation with the Virginia Commission of Game and Inland Fisheries, the Biological Survey has been conducting a field study of the food habits of foxes to determine their relationship to nesting upland game birds. To determine more accurately the extent of fox depredations upon nests of game birds, Mr. Nelson has studied the histories of some 120 nests of ruffed grouse and quail in territory where the gray fox was a common predator. The ruffed-grouse nests, totalling 35 in all, were confined largely to the Shenandoah National Park and were located by CCC camps in the course of regular activities on the park area. In addition to obtaining the histories of a series of nests, Mr. Nelson reports that some 20 fox dens were located and kept under observation to obtain added food habits data. In an attempt to learn something about the wanderings of foxes, Mr. Nelson succeeded on September 18 in marking by means of a tattoo instrument some 13 red foxes being held for release in northern Virginia. Information concerning the territory covered by these animals will not only be of scientific interest but will be of direct value in economic considerations involving the species.

Inspects Waterfowl Units of T. V. A.--A. C. Martin spent several days in August in a brief reconnaissance of waterfowl prospects in the system of lakes being created on the Tennessee River by the Tennessee Valley Authority. With no material sacrifice to water power and with only small or moderate cost it appears possible to augment greatly the utilization of natural resources here by developing special units that will be valuable to wildlife--particularly to waterfowl and fish. Before returning to Washington Mr. Martin examined several impoundments being developed for the use of waterfowl at Fort Knox, Ky.

Studies Bird Depredations.--Early in June Johnson A. Neff made a study of horned-lark damage in several counties of California. He found that because of earlier planting there has been comparatively little damage this year. It was also found that because of a good natural food supply in the mountains, the band-tailed pigeons were doing little damage to agricultural crops. Reports of depredations by both of these birds are frequent.

Investigates Reported Depredations by Wild Pigeons.--Late in June Theo. H. Scheffer investigated reported depredations by wild pigeons to pea crops near Port Angeles, Wash. No damage at that particular time was in evidence, although it seems probable that further studies should be made later in the season. Earlier in the month Mr. Scheffer had visited the Portland (Oreg.) office to discuss cooperative matters and prepare for experimental waterfowl food plant studies.

Fur Resources

Visits Fur Animal Experiment Station.--During the first week of August, Frank G. Ashbrook inspected the work at the Fur Animal Experiment Station, Saratoga Springs, N. Y. The grounds, buildings, and other property, he reports, are in excellent condition as well as the fur animals being used on experiments. The 4 martens born last spring have grown rapidly. The mature and young minks that were started on a feeding experiment early in July are progressing well. The fox pups produced this spring have not developed in some instances as rapidly as those last year. This is probably due to the method of feeding employed in the experimental work. On his return trip he stopped in New York to discuss fur-resource work with members of the fur trade.

Addresses Retail Furriers Convention.--Mr. Ashbrook attended the Sixth Annual National Retail Furrier Convention and Trade Exposition, in Buffalo, N. Y., July 3 to 6 and addressed the Convention at the luncheon on July 5 on the subject of "Fur Resources--The Stepchild of Conservation." The convention later recommended in a resolution that fur animals should be given greater consideration than heretofore in the formulation of national conservation policies. The resolution was sent to the President, the Secretary of Agriculture, the Chief of the Biological Survey, and other Government officials.

Inspect Muskrat Area.--Mr. Ashbrook, accompanied by Chas. E. Kellogg and by Dr. Fred C. Bishopp, of the Bureau of Entomology and Plant Quarantine, and Dr. E. N. Cory, entomologist for the State of Maryland, on August 23, visited the Blackwater Migratory Bird Refuge to designate a specific area on the refuge for ditching according to methods prescribed by authorities in charge of mosquito-control work. The purpose of this experiment is to determine what effect ditching of this type of marshland will have upon the vegetation as well as on the muskrats. The Section of Food Habits Research had previously made a survey of the plant food of this area. Frequent surveys will be made both of the plant food and the muskrats from year to year in order to note any changes that may occur. About 200 acres have been included in this investigation.

Rabbit Breeders Association Hold Picnic Lunch and Meeting at Station.--On July 23 the Pomona Valley Rabbit Breeders Association held their semimonthly meeting at the U. S. Rabbit Experiment Station, Fontana, Calif. The group visited the rabbitry and later assembled in the station building for a program furnished by the members of the staff.

Cooperative Marketing Association of Rabbit Breeders Being Organized. --George S. Templeton, director of the U. S. Rabbit Experiment Station, and A. E. Suitor, superintendent, at Fontana, Calif., recently attended a rabbit meeting held at Pasadena, Calif., to which practically all of the rabbit associations in the southern part of the State sent delegates. The marketing of domestic rabbit meat was the chief item of discussion, and preliminary steps were taken towards forming a cooperative association for working out marketing problems for the rabbit industry in that section.

Rabbits Can Utilize Whole Grain Satisfactorily.--Mr. Templeton, in a preliminary report of current experimental work states that data on all the litters indicate consistently that there is no advantage to be derived from rolling barley and oats for feeding rabbits. The rabbits have shown a preference for the whole grains. This information may mean a great saving to rabbit raisers.

Self-Feeding of Rabbits Reveals Startling Data.--Wheat bran, which has been considered particularly valuable as a rabbit feed not only because of its nutritive qualities but also because of its regulatory effect upon the digestive tract, has been found through self-feeding experiments not to be the first choice of the rabbits. Where an animal has had opportunity to make a choice as to feeds, 2½ percent of the concentrated part of their ration has been in the form of wheat bran. Mr. Templeton also reports that so far this experiment indicates that rabbits produced to fryer size by the self-feeder method have weighed almost one-third more at the end of 8 weeks than those hand fed. There has also been a marked decrease in the mortality among young rabbits in the case of self-fed litters.

Breeders and Millers Meet at Rabbit Station.--On August 28 a conference was held at the U. S. Rabbit Experiment Station for the rabbit breeders' representatives of the milling industry. Approximately 125 persons were in attendance. Mr. Templeton discussed various factors that have a direct bearing on economical fryer production, basing his talk on experimental work being conducted at the station.

Official of the Korean Station Visits Fontana.--On August 16 Dr. O. V. Chamness, of Taikyu, Chosen (Korea), visited the Rabbit Experiment Station to obtain information on rabbit-production problems. Dr. Chamness, who is associated with a Lepers Hospital, stated that he intends to enlarge the rabbitry of 60 producing does so that at least 1,000 pounds of domestic rabbit meat can be produced weekly.

Procedure at Fur Station More Efficient.--Chas. F. Bassett, who took charge of the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., as director on June 1, 1935, after 3 months' careful study has at last had an opportunity to standardize the procedure at the station and put it on a more efficient basis. Particular emphasis is being placed on systematizing the experimental records so that the information may be readily available when needed.

Many Visitors at Fur Station.--On July 16 a group of fox breeders visited the Fur Animal Station to obtain formulas for summer feeding and suggestions for a yearly plan for fox management. The manager of a fox ranch in New York called at the station on July 17 for the purpose of obtaining first-hand information relative to furring ranges, sheds, tinge, feeding, and tendon cutting. An instructor in fur preparation and fur marketing at the Central Needles Trades High School in New York City, visited the station on August 16. About 85 persons visited the station during the month of August. On June 1 Carlos Garcia-Mata, commercial attache of the Argentine Embassy, Washington, D. C., visited the station, and later paid the Washington office a visit. He is contemplating starting the raising of minks in Argentina.

Rabbit Station Superintendent Visits Fur Station.--A. E. Suitor, on annual leave from the U. S. Rabbit Experiment Station, Fontana, Calif., visited the fur-animal station on June 10. He was accompanied by his wife and son.

Assists Fox Breeder in Planning Fox Farms.--Walter G. McBlain, junior biologist at the fur-animal station, spent July 23 and 24 at Mendon, Vt., discussing the location and construction of fox pens and buildings for a local fox breeder.

Disease Control

Attends Fur Breeders Meeting.--At the New England Fur Breeders Association meeting in Portland, Maine, June 26 and 27, Dr. J. E. Shillinger gave an informal talk on diseases affecting silver foxes and minks. A round-table discussion by the members of the association and those on the formal program brought out many facts related to losses on fur farms. En route Dr. Shillinger made visits to fur farms in Massachusetts where epizootics were in progress.

Prepares Motion Picture on Game Farming.--Dr. L. C. Morley in cooperation with the Office of Motion Pictures has been preparing a film on the diseases affecting game birds. Scenes have been taken on game farms in Virginia and Maryland portraying methods for producing and maintaining game species in such manner as to prevent and control losses.

Addresses Game Farmers.--On June 5 Dr. F. D. McKenney addressed the California Game Breeders Association on methods of disease control on game farms. A copy of his talk was requested for publication in the California Game Breeders Magazine.

Losses in Game Birds.--Severe losses in birds on game farms in the Middle Atlantic States have been reported to the Bureau. Investigations made by Dr. Morley in one instance showed the trouble to be largely a nutritional problem. In the other instance a preliminary study by Dr. Shillinger indicates that the losses are due to botulism. Laboratory studies are being conducted to determine whether this is the sole cause.

MIGRATORY WATERFOWL

Funds Furnished Survey by WPA for Work in North Dakota.--The development of 33 areas in 21 counties of North Dakota for use by wildlife has recently become possible through the release to the Survey of \$266,289 for that purpose by the Works Progress Administration. These tracts have been acquired under perpetual easement and will be administered by the Migratory Waterfowl Division, with the object of restoring them to a perpetual productiveness compared with their once natural prolific waterfowl breeding capacity. M. O. Steen, assistant project director, with headquarters at Bismarck, N. Dak., will direct the work.

More CCC Camps to Aid Restoration and Development.--Amos B. Emery, in charge of the Restoration and Development Section, speaks highly of the splendid cooperation given the Bureau by the Forest Service. Since the last issue of THE SURVEY, the Forest Service has established 15 CCC camps on 14 refuges located as follows: 1 white camp and 1 colored camp on the White River Refuge, Ark.; 1 colored camp at Savannah River Refuge, Ga.; and 1 white camp each on the Seney Marsh Refuge in Michigan, the Squaw Creek Refuge in Missouri, the Jim and Arrowwood Lakes Refuge in North Dakota, the Des Lacs Refuge in North Dakota, the Lower Souris Refuge in North Dakota, the Upper Souris Refuge in North Dakota, the Valentine Refuge in Nebraska, the Wichita Wildlife Refuge in Oklahoma, the Lake Malheur Refuge in Oregon, the Lake Andes Refuge in South Dakota, the Sand Lake Refuge in South Dakota, and the Trempealeau Bottoms Refuge in Wisconsin. Under the supervision of Survey technicians, the CCC enrollees are constructing devices for the impoundment and conservation of water, truck trails, and roads, telephone lines, administration headquarters, and recreational area. Most of the refuges have required some clearing and revegetating, but landscaping is being done only around the headquarters group, since one of the fundamental objectives of the program is to preserve the areas in their natural state. The workers are also engaged in supervised food and cover planting. On the larger refuges where barges and patrol boats are needed, these are being built, together with suitable docks and boatsheds. Steel look-out towers are being erected at strategic points on refuges to facilitate better fire control, the spotting of poachers entering the area, and the study of wildfowl concentrations, flights, and abundance.

Bureau Benefits by New Appropriation.--The Survey has been materially and morally aided by the direct appropriation of \$6,000,000 toward its program of national wildlife restoration and preservation, for the acquisition and development of waterfowl refuges throughout the country. In many sections, the necessary control of water and the creation of water bodies within the refuges will do much to repair the havoc wrought by protracted drought, and the work of development will turn loose hundreds of thousands of wage dollars into hard-hit, long-suffering communities. The Bureau has also submitted to the National Emergency Council a program that, if approved, will make possible the almost complete rehabilitation of all wildlife sanctuaries and the satisfactory development of the new refuges.

New Civil Service Register Being Compiled.--It is expected that a new civil-service register soon will be available, which will greatly aid the Migratory Waterfowl Division in selecting personnel to administer refuges acquired during the past year. September 3 marked the closing date for applications for an assembled written examination for junior refuge managers, and September 9 was the last day applications were acceptable from prospective associate refuge managers, refuge managers, and refuge superintendents for an unassembled examination based upon experience and education.

Division Gets New Assistant Chief.--Arthur C. Elmer was appointed assistant chief of the Migratory Waterfowl Division on September 3. Mr. Elmer was born in Plymouth, Wis., and after receiving his bachelor's degree in forestry from the University of Michigan in 1925, spent 1½ years as junior forester with the U. S. Forest Service in Albuquerque, N. Mex. He then returned to the University of Michigan and obtained a master's degree. In 1927 he joined the Michigan Department of Conservation as an inspector and became assistant chief of the Department's division of field administration. He was in charge of fire-control activities and participated in law enforcement and the field operation of State game refuges.

Division Chief Goes to Coast.--Mr. Salyer left Washington on September 21 for the Lake Malheur Migratory Waterfowl Refuge at Burns, Oreg. Enroute he planned to visit the Bear River Migratory Waterfowl Refuge, Utah, and to inspect other refuges, with a view to formulating administrative procedure for the various units. He also will look at several proposed sanctuary sites that have been recommended for purchase for wildlife conservation purposes and will confer with Biological Survey officials in the field.

Reports on Field Trip.--R. O. Gustafson, administrative assistant in the Restoration and Development Section, is back in the Washington office after a visit to 13 refuges in Arkansas, Missouri, and the Central West, where CCC camps are now established. He reports that in the main the Survey can feel gratified over the progress being made toward the satisfactory rehabilitation of these areas for waterfowl purposes. While in the field, Mr. Gustafson instructed camp superintendents in the procedure of camp operation, checked equipment requirements, and made inspections of work completed to date.

Visits CCC Camps.--Mr. Emery left Washington September 24 to visit CCC camps established on refuges in Arkansas, Missouri, North Dakota, South Dakota, Nebraska, Wisconsin, and Michigan. He will be concerned chiefly with an intensive check-up of personnel problems, inspections of headquarters construction, and ECW projects completed or under way, and a detailed reconnaissance necessary to the establishment of certain new camps and the discontinuance or transfer of others.

LAND ACQUISITION

Projects Approved.--Projects have recently been approved by the Resettlement Administrator for Delta, La.; Mud Lake, Minn.; Lake Isom, Tenn.; and Cape Romain, S. C.

Area Closed to Shooting.--Notification has been received of the approval by the President of a proclamation establishing an area closed to hunting on and near the Swanquarter Migratory Bird Refuge in South Carolina. The effect of this proclamation is to establish a unit that will not only facilitate protection on the refuge proper but will extend protection over adjacent waters.

Enlargement of Game Preserve.--The President approved the extension of the Wichita Mountains Wildlife Refuge on July 26 so that it now includes the entire area covered by the Wichita National Forest. This forest was established in 1901 and was partly covered by a proclamation in 1905 that established a game preserve on the national forest. The recent Executive order prevents further encroachment by mining or grazing interests and sets the entire remaining forest area apart for the protection of wildlife.

Emergency Projects Approved by the President.--The Blitzen Valley area in Oregon was set apart by the President on July 19 as an addition to the Malheur Migratory Bird Refuge. This land, purchased through the Federal Emergency Relief Administration, includes approximately 65,000 acres along the Donner-und-Blitzen River, the most important southern inlet for Malheur Lake. Its acquisition insures a maximum water supply for this refuge which is of primary importance to the waterfowl west of the Rocky Mountains. Other resettlement projects on which refuges were established by Executive order late in August and early in September are: Arrow-wood, Lostwood, Des Lacs, Upper Souris, and Lower Souris in North Dakota; LaCreek and Sand Lake in South Dakota; Medicine Lake and Red Rock Lakes in Montana; Crescent Lake and Valentine Lakes in Nebraska; Squaw Creek in Missouri; and White River in Arkansas.

Public Domain Project Approved.--The President on September 6 signed an order for the establishment of a huge refuge in Oregon and Nevada to be called the Hart Mountain Game Range. This area, to be administered jointly by the Departments of Agriculture and Interior, will cover approximately 1,360,000 acres. It is designed primarily for the protection of a herd of 4,000 antelope.

Boundary Surveys Made.--The boundary survey of Bull Island on the Cape Romain Migratory Bird Refuge, S. C., has been completed by the party under R. C. Faucett who has also finished the Savannah (Ga.) survey. O. E. Recroft has moved his party to Seney, Mich., where surveys are now in progress. This party completed work at Lake Isom, Tenn., early in July. R. E. Kirkham has survey work under way at Sand Lake, S. Dak.

Movements of Personnel.--Mr. Dieffenbach recently completed a short inspection of refuge areas in South Carolina and Georgia. Mr. Riemer returned from Minot, N. Dak., late in August, where he completed an extended inspection of survey work at the various refuges in that section. A. J. Rissman has gone to St. Louis in connection with land acquisition on projects in the southern Mississippi Valley area. F. F. Friend during July made a short trip to Savannah, Ga., and Cape Romain, S. C., inspecting surveys for these two areas. K. C. Kern went to Havana, Ill., early in July to supervise work commencing on the Chautauqua project.

GAME MANAGEMENT

Publication of Pamphlet on "The Black Wolf of the Tensas".--In the program of activities of the Chicago Academy of Sciences (vol. 6, no. 3) published in July 1935, is given the story of "The Black Wolf of the Tensas". The author, Tappan Gregory, honorary curator of mammalogy of the Academy, presents the whole story of the photo-

graphing of the wolf in its natural habitat as carried out last October in a cooperative expedition of the Chicago Academy of Sciences and the Biological Survey, of which Mr. Young was a member. Fully illustrated by photographs, the story of the successful expedition into Madison Parish in northeastern Louisiana, the habitat of probably the last remnants of the so-called Florida wolf, is strikingly told. Sufficient copies of the publication have been made available to make it possible to send one to all members of the Bureau, both in Washington and in the field. Mr. Gregory, the author, is a recognized out-door photographer especially experienced in getting animals to take their own pictures. He has attained remarkable success, particularly with deer and smaller mammals. It is a hobby Mr. Gregory has followed for many years, and each year this distinguished photographer seems to improve upon his technic. Since the expedition into Louisiana considerable improvement has been made over the mechanics depicted in the pamphlet. "Without Stanley Young," says Mr. Gregory, "there would have been no expedition. More than anyone else he was responsible for our success. It was his idea, organized by him, made possible by his intelligent administration and indomitable spirit."

Game-Preserve Administration

Wind Cave Preserve Transferred.--Wind Cave National Game Preserve, S. Dak., has been transferred, in accordance with Act of Congress approved June 15, 1935, to the jurisdiction of the National Park Service, Department of the Interior, effective July 1, 1935.

Calves and Fawns Born at Big-Game Preserves.--Young born this year in the herds of big-game animals on the preserves administered by the Biological Survey included 41 buffalo calves at the National Bison Range, Mont., of which 2 died. Other young animals at the Bison Range included 24 mule deer fawns (3 died and 1 was killed), 10 white-tailed deer fawns, and 15 mountain sheep lambs. No estimate has been given regarding the numbers of elk calves born at this point. At the Wind Cave Game Preserve, S. Dak., now administered by National Park Service, 20 buffalo calves were reported. At Niobrara Game Preserve, Nebr., 24 buffalo calves, 8 elk calves, 3 antelope fawns, and 3 white-tailed deer fawns were born this year. At Sullys Hill Game Preserve, N. Dak., 1 buffalo calf and 3 white-tailed deer fawns were born, and it is estimated that there are at least 5 elk calves on the area. At the Wichita Mountains Wildlife Refuge, Okla., 50 buffalo calves have been seen, and it is estimated that there are 25 elk calves and 100 white-tailed deer fawns. In the herd of Texas longhorns on the Wichita area there are 20 calves.

Fire at the National Bison Range.--On July 25 about 5 p.m., a lookout stationed at High Point tower within the Bison Range notified the Range headquarters that lightning had started a fire in the southwestern part of the preserve. Crews and equipment were immediately rushed to the place, where it was found that timber was burning in the slide rock. It was possible to get the fire under control by 10 p.m. that night, but seven men remained on guard until morning. During the storm

of the night of July 25 a great many trees were blown down, some shingles on the bunk-house were torn off, and the tent that had been erected at the High Point lookout tower was blown away with food supply and stove.

Unusual Rainfall at Sullys Hill.--An unusually heavy rainfall was registered in the section of the Sullys Hill Game Preserve, N. Dak., during the summer. In July, 6 inches were recorded, $2\frac{1}{2}$ inches being the normal rainfall for that month. Late in the evening of July 26 hail fell for 20 minutes at the preserve, some of the stones measuring $2\frac{1}{2}$ inches in diameter. Wesley D. Parker reports that four of the hailstones touching end to end measured $9\frac{1}{2}$ inches. No damage was done by the storm at the preserve, though many small branches were cut from trees; but crops in the region were damaged, and young stock animals were killed.

University of Nebraska Preparing a Film.--The University of Nebraska is preparing a motion picture to be entitled "Nebraska Beautiful" which is to include views of many parts of the State. A photographer from the University visited Niobrara Game Preserve in July and took 100 feet of pictures, including views of headquarters site, the waterfalls, and the big-game animals. The use of this film has been promised to show to members of the CCC camp at Niobrara Preserve next winter, when the picture will be completed. A copy of the colored film will be furnished the Bureau.

Drought Broken at the Elk Refuge, Wyo.--On Sunday, July 21, the first rain since the latter part of May was recorded at the Elk Refuge.

Bureau Visitors at Game Preserves.--Mr. Young, Game Management chief, left Washington on August 8 for an extended official trip during which he visited the various big-game preserves throughout the West, the Bear River Migratory Bird Refuge, Utah, and other points. W. E. Crouch, in charge of game agents and preserves, visited Niobrara Game Preserve, Nebr., on July 29 and 30, en route to Alaska, the objective of an official inspection trip. Kenneth F. Roahen, U. S. Game Management Agent, was a visitor at the Elk Refuge on July 19, and Mr. Henderson inspected the refuge early in August.

Deer Presented to Sullys Hill Preserve.--Two white-tailed deer--a male and a female--have been added to the small band of these animals at Sullys Hill Preserve, N. Dak. They are the gift of a resident of Grand Forks, N. Dak.

Law Enforcement

Federal Bird Laws Upheld by Courts.--Overruling a demurrer to an indictment for hunting mourning doves over a baited area, Judge William H. Barrett, in Federal court at Savannah, Ga., on September 5 upheld the power of the Secretary of Agriculture to regulate hunting methods. Judge Barrett's decision, following by only a few days a similar decision by Judge H. Church Ford at Lexington, Ky., sustaining the Secretary's power to limit open seasons, effectively answers these constitutional objections to this year's hunting regulations.

New Regulations Include Drastic Restrictions.--Amended regulations under the Migratory Bird Treaty Act were approved by President Roosevelt on July 30 and August 27. The new regulations provide for two 30-day seasons on ducks, geese, brant, jack-snipe, and coot--October 21 to November 19 in Northern States, and November 20 to December 19 in the rest of the country. In western Alaska the season was September 1 to 30 and in the rest of the Territory it opened on September 20 and will close on October 19. No open season is allowed on wood ducks, ruddy ducks, buffle-head ducks, Ross's geese, or swans, and no shooting of snow geese is permitted in Florida or in other States bordering on the Atlantic Ocean. The former prohibition of brant hunting in the East has been removed. The new regulations place the daily bag limit on ducks at 10 in the aggregate of all kinds and make the possession limit conform to this daily bag limit. Changes represent a reduction of 2 in the daily bag and of 14 in the possession limit of the common species, but extra restrictions on certain species have been removed. Bag limits on geese and brant remain at 4, but the possession limits have been cut in half, now conforming to the bag limits. The bag and possession limits on other species affected by the regulations are as follows: Coot, 15; jacksnipe, 15; sora, 25; rails (except sora and coot), 15; woodcock, 4; mourning dove, 20; band-tailed pigeon, 10. Described as the most rigid in the history of American wildfowling, the regulations include severe restrictions found necessary by the Bureau's studies. Species nearest the danger point of extinction, such as canvasbacks and redheads, will be particularly favored by the elimination of sinkboxes, sneak boats, and open-water shooting, heretofore the chief methods of hunting these species. Shooting over baited water or land, which has furnished the heaviest toll from all species and accounted for the most consistently full bag limits, will be prohibited. The use of live decoys, one of the most effective methods of luring the migratory flocks to the blind, is also ruled out. None will be allowed. Zoning of States by waterfowl seasons will be eliminated, and there will be only two zones for wildfowlers, northern and southern. Shooting of waterfowl, jacksnipe, and coot will be restricted to the hours between 7 a.m. and 4 p.m. and of other birds to 7 a.m. to sunset. The 3-shell limit placed on autoloading and repeating shotguns last February will take effect for the first time this fall, and the regulations provide that hunters may use a shotgun only, not larger than no. 10 gage.

Explains Regulations.--The new waterfowl regulations were explained at a meeting of the Kiwanis Club of Elma, Wash., on September 4 by Leo K. Couch. Mr. Couch also discussed the flying habits of the migratory birds.

Talks to Sportsmen on Waterfowl.--Regional Director D. H. Janzen represented the Bureau at the 16th annual convention of the Northern Michigan Sportsmen's Association, held in Sault Ste. Marie, August 11 and 12. Mr. Janzen discussed the general waterfowl situation during the last few years and the data and objectives that led to the 1935 hunting regulations.

Attends Crow Hunters Convention.--Regional Director Janzen reports attending the First Annual Convention of the Ohio Crow Hunters Clubs at Toledo, Ohio, on June 7, 1935. Responding to a request by the chairman of the meeting, Mr. Janzen took the opportunity to emphasize the need for discretion and game-law observance on the part of the club members in order that they might avoid stirring up public opinion against their avowed plans for crow control.

Michigan Holds Conservation Officers' School.--Mr. Janzen also reports attending and participating in the program of the Michigan State Conservation Officers' Training School being conducted at Roscommon, Mich., in a series of five sessions of 10 days each. He states that the officers were much interested in the discussion of Federal regulations and that at the last session he had the floor for almost two hours discussing and answering various questions on Federal regulations and their enforcement. On June 5 Mr. Janzen accompanied H. D. Ruhl, in charge of the State Game Division, and George Saunders, State ornithologist, to New Baltimore, Mich., where a meeting was held for all those interested in the proposed St. Clair Flats Migratory Waterfowl Refuge. Mr. Janzen outlined the present system of Federal refuges now being established and emphasized the need and advantage of the proposed refuge on St. Clair Lake. Questionnaires circulated by Mr. Saunders to date indicate an overwhelming sentiment for the refuge.

Deputy Game Management Agent Transferred.--John C. S. Boswell, deputy game management agent in Region 7 during the past season, has been temporarily transferred from the Virginia district to Savannah, Ga., to serve as acting game management agent for the district left vacant by the death of E. B. Whitehead.

Patrol Boat "Loon" Goes into Service.--The new Bureau patrol boat Loon has recently been put into service by Game Management Agent Orin D. Steele on the intricate waterways of the Eastern Shore of Maryland and Virginia. The Loon is a 46-foot boat with 14-foot beam and 36-inch draft, and is admirably designed for service in all kinds of weather in this important waterfowl area.

Refuge Cases Terminated.--For trapping raccoons on the Upper Mississippi River Wildlife and Fish Refuge a defendant arraigned in Federal Court at Dubuque, Iowa, was recently sentenced to pay a fine of \$50. The fine, however, was suspended, and he was placed on probation for a period of one year. Charged with illegal trapping of muskrats, a Wisconsin resident entered a plea of guilty in Federal Court at LaCrosse and was sentenced to serve two days in the county jail. For taking fish contrary to State law a Wisconsin resident entered a plea of guilty in State court and was sentenced to pay a fine of \$50 and costs of \$7.15, or in default thereof to serve 90 days in the county jail. He failed to pay the fine and costs. Another case involving the taking of fish contrary to Wisconsin law was terminated in State court on plea of guilty with a fine of \$50, but in default of payment, the defendant was sentenced to serve 30 days in jail. Evidence in these cases was obtained by Rangers Lawrence and Lundberg and Deputy Snyder.

Importations

Inspector of Foreign Birds and Mammals Appointed.--James Lee Peters, a member of the staff of the Museum of Comparative Zoology, Cambridge, Mass., was appointed inspector of foreign birds and mammals at the port of Boston, Mass., on June 1. Mr. Peters is the author of "Check List of the Birds of the World" now in course

of publication, two volumes having already appeared, and is exceptionally well qualified for the duties of this position. He is a Fellow of the American Ornithologists' Union and a member of the principal ornithological and mammalogical organizations of the United States. A former employee of the Survey, he served as field assistant in natural history investigations in 1914, '15, and '16.

Interesting Birds Imported.--Among the more interesting birds recently imported were 40 emerald tanagers (Calospiza guttata chrysophrys) from Caracas, Venezuela; 2 Siamese raven hornbills (Anthracoceros corvexus) from Africa; 6 Abyssinian dwarf falcons (Poliohierax semitor quatos), and 26 Abyssinian sun birds (Chalconitra cruentata).

Emigrant Quail Embarks on Steamer for U. S.--A European quail (Coturnix coturnix) is reported to have come aboard the Steamer American Farmer en route from London, England, about May 1. The uninvited, nonregistered guest was given quarters with a small consignment of canaries, goldfinches, and linnets, which happened to be already on board with proper credentials, and was added to this consignment, for which an importation permit from this Department had previously been issued. The birds were consigned to Follansbee, W. Va.

Predator and Rodent Control

Follow up CWA Rat-Typhus Work.--Under the direction of R. B. Deen, district agent, 100 men recently completed rat poisoning and trapping campaigns in 46 southern Alabama towns, treating 16,736 premises at a gross cost of \$4,324. Since the CWA typhus-fever rat-control project was inaugurated there in 1934 there has been a marked decrease in the number of human typhus fever cases.

Control Pocket Gophers in Southern States.--Pocket-gopher control projects in Mississippi, Alabama, and Louisiana, in cooperation with the Soil Conservation Service, have produced excellent results and have met with the hearty cooperation of the farmers. About 70,000 acres were treated, and in many cases practically 100 percent control was effected for the protection of terraces from washouts caused by the rodent burrows.

Notorious Cougar Caught.--"Seven Devils Tom", a notorious cougar of northern Idaho, credited with a long list of depredations among cattle, sheep, colts, and game, was recently taken by a Bureau cooperative hunter after three days of trailing. Owen W. Morris, assistant district agent at Lewiston, Idaho, says that this cougar was one of the largest ever taken in his district.

Hunters Brave Perils.--Two examples of the perils that the Bureau's cooperative predator hunters face occurred in the Idaho district on February 27. Verne Carothers, while stationed on the Middle Fork of the Salmon River seriously cut the calf of his leg and severed a muscle, the main artery, and several small tendons. After extreme difficulty in stopping the flow of blood, he managed with the aid of another trapper who happened along, to sew up his leg with a darning needle and thread, taking 15 stitches. He later received treatment in the Veterans Hospital at Boise, Idaho. On the same day, Howard Nugent, another cooperative hunter in the Idaho district, broke his leg while trying to get his car out of a snow drift. He put the car in reverse gear and got out to push. After

dislodging it from the drift, he slipped and the car ran over his right leg, backed down the hill about 1 mile, and stalled in some thick sagebrush. With great effort and pain Mr. Nugent succeeded in dragging himself through snow, sagebrush, and cactus to his car. He drove 10 miles for help.

Station Produces 2-1/2 Million Pounds of Bait.--Paul T. Quick, in charge of the U. S. Bait Mixing Station at Pocatello, Idaho, reports that the production during the fiscal year 1935 surpassed any like period. The total output was approximately 2½ million pounds, or more than 100,000 pounds above the previous peak year--the fiscal year 1934. Services of the station were extensively utilized during this year in all emergency and regular rodent-control programs.

Rid Air Fields of Pocket Gophers.--The Biological Survey has assisted the Division of Aeronautics of the Bureau of Air Commerce, U. S. Department of Commerce, in ridding landing fields of pocket-gopher problems. Pocket-gopher runways on air fields represent a considerable danger to planes landing and taking off from the field.

Texas Appropriates \$60,000 for Control.--The Legislature of Texas has made provisions for an appropriation of \$60,000 per year for the next biennium for predatory-animal control to be done under the supervision of the Survey. As heretofore, administration of the money is under the Livestock Sanitary Commission.

Bear Crosses Rio Grande to Texas.--C. R. Landon, district agent in Texas, reports that in the past there have been several instances of lobo wolves and mountain lions crossing the Rio Grande from Mexico into Texas and raising havoc on the cattle and sheep ranches along the border. Recently, a bear crossed the Rio Grande at a point below Comstock, Tex., near the mouth of the Pecos River. Its depredations became so numerous that it was necessary to assign a special Survey hunter, Roy Brotherton, to the case. The bear was taken by him on May 24. This is the first record of a bear crossing the Rio Grande into Texas.

Flood Damage Increased by Pocket Gophers.--Another case of a few pocket gophers doing damage running into many thousands of dollars was recently reported from Kansas, where for two days 600 men waged an unsuccessful battle to keep the pounding water of the flood-burdened river from eating its way through a 5-mile section of levee. When this finally broke, the water rushed through a 15-foot gap and flooded hundreds of acres of Kaw Valley, north of Lawrence, Kans. The pocket gophers had honeycombed the levee and water crumbled it from the inside.

George M. Trickel, assistant district agent and veteran employee in the Colorado district, passed away on July 15 at the Colorado General Hospital. Mr. Trickel had been employed for nearly 20 years with the Biological Survey doing both predator and rodent-control work. His associates describe him as always being conscientious in his work and loyal to the service he represented. He is survived by wife and two children.



THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., October 1935

No. 10

1885--FIFTIETH ANNIVERSARY NOTES--1935

Reminiscences

By W. L. McAtee, Principal Biologist and Technical Adviser, Office of the Chief
(formerly in charge of the Division of Food Habits Research)

My personal knowledge of the study of the food of birds in the Biological Survey dates back to the summer of 1903. At that time the whole organization ranked as a division and was quartered in 6 office rooms and 2 separate shops for the taxidermist and the photographer. The offices were in a brick building and the shops in frame structures, part of a heterogeneous collection of buildings on the site of the present administration building of the Department.

Although economic ornithology was given precedence in all early appropriation bills, the work was at that time being carried on by 2 employees out of a total of about 20 in the organization. Collections, desks, and work tables all were contained in one room, which served also as headquarters for the messengers, accommodated at time one or two other employees, and served as a general packing and lumber room for the whole outfit.

Equipment was primitive, only single-lens dissecting microscopes, for instance, being available. An ordinary pine table without the plumbing we have nowadays sufficed, and when the work demanded the use of a sink, a trip to one built against the wall was necessary. Small jobs requiring water were done with flasks arranged as wash-bottles. The connections of these could be adjusted so that the user would blow water in his own face--a thing, strange to say, that sometimes happened.

A large compound window gave good light but there was no provision for artificially lighting the work on dark days. Outside the window was a busy driveway with a bubbling drinking fountain for horses, then needed. Birds drank and bathed in it also, robins and grackles boldly flopping from edge to center, or vice versa, and others being more timorous. I saw a grackle with one whack of its bill kill an English sparrow sitting beside it on the edge of this fountain.

At first I had been assigned to miscellaneous tasks, such as helping H. C. Oberholser rearrange the bird collection, in cataloging birds (at which time I sat in the same room in the Old National Museum Building with P. L. Gladmon, now Chief of the Department's Division of Appointments) and in putting in order the Geological Survey topographic sheets, of which the Division then had a considerable, and the Bureau now a great, collection.

When I was brought to the laboratory, if it could be so called, and introduced to Dr. S. D. Judd (Prof. F. E. L. Beal being absent on some of his California field work), Judd remarked, "So you're the new man that has come to take my job." That was a new idea to me, and I said so; but on Judd's part it may have been prophetic, as he might have then been aware of personal handicaps that held a threat to his existence. I did not know Judd at his best in Biological Survey activity, but at that period he must have been a brilliant as well as an enthusiastic worker. Certainly his "Birds of a Maryland Farm" (Biol. Surv. Bull. No. 17), based on field and laboratory work carried on from 1895 to 1902, is the best study of local economic ornithology that has ever been published. He sometimes referred to the days when for him "every stomach was a puzzle and every puzzle was a stomach".

At the time I was acquainted with him, Judd was not well balanced mentally, but there were reasons--misfortunes in his personal history--that might well have affected anyone as they did him. He had suffered a back injury in youth, and also the loss of an arm in a hunting accident. Owing to these or other causes, his voice had not matured, nor had a beard developed. He was thin, eager, and high-strung and wore himself out so that in the fall of 1905 he committed suicide.

Judd was a fancier of sporting dogs, bred English setters, and ran them in field trials. He had a passion for betting and would make almost anything the pretext for a bet. One favorite diversion of his was to get some sticky fly paper which came in paired sheets, arrange a bet with someone as to who would catch the first fly or the first five, or some such number, tear the sheets apart and expose them under the same conditions, then stand by watching and "rooting" for results. After I was fairly embarked in the stomach analysis work, Judd showed a desire to bet on the identity of seeds or insects. As I would not bet unless I was sure, I got in his esteem, an undeserved reputation for memory. After losing several times he exclaimed perplexedly, "You never forget anything, do you?"

As he liked to be "shocking" at times Judd said many things that did not reflect his inner personality. He came from good stock, was intelligent, well educated, and innately refined. His great sensitiveness and his physical handicaps probably combined to give him what we now call an "inferiority complex", which he attempted to hide by brusque and reckless but superficial behavior.

These last lines bring to mind James H. Gaut, not a food-habits worker, but a temporary occupant of the "gut-shop" as Judd called it. He was essentially a field collector and was known as a "go-getter" being sent hither and yon for topotypes or other much-wanted material, usually "delivering the goods." Certain phases of their personalities meshing well, Gaut and Judd were boon companions during Gaut's Washington visits. Gaut was of a reckless disposition and in the horse-and-buggy-days managed to have an accident that cost him an arm. Naturally, when automobiles came along, with this more efficient means, it was not long before he was involved in a fatal crash.

During my second summer, at the beginning of my permanent service in the Biological Survey, that is in 1904, Professor Beal was in Washington. He was the man I wanted to meet and work with, and we got along well then and throughout his life. (He died in 1916). He was an indefatigable worker who kept his eyes to the microscope more hours per day and more days than anyone I have ever known. It is not likely that

his record of examining over 37,000 bird stomachs will ever be surpassed. Professor Beal was well preserved up to the age of 70 and full of enthusiasm for every cause he approved. In disapproval, especially of the injustices of the world, he was wont to stand and give his opinion to all within hearing in terse and vigorous language. He had reflected much on life, and his views on many things were crystallized in aphorisms that he was fond of quoting. Two of them relating to the work were, "you take care of the facts and the theories will take care of themselves," and "ignorance is better than error." The latter had reference to pushing identifications further than was justified by the condition of the material or by other circumstances.

Professor Beal believed that identification to family was sufficient in many cases to permit correct economic interpretation, and this no doubt was a factor in his great output of analyses. Nowadays we prefer to carry all identifications as far as possible, since interpretation can then be made, regardless of the difference in status of even closely related forms, and the changes that occur from region to region or with the lapse of time.

Professor Beal told me incidents of earlier history, a few of which may be of interest to pass along. Someone in the laboratory chewed the coating off some seeds from a bird stomach as a first step toward their identification, and subsequent results proved that the seeds were poison ivy. Another worker (J. M. Stedman) dropped a scalpel while seated at a work table and, manlike, clapped his knees together to catch it. The blade caught crosswise between his legs--severed a large blood vessel so that he had to be taken to a hospital. A thing one learns by sad experience if not otherwise is: When scalpels, needles, scissors, glassware, and all such cutting and piercing implements want to fall, better let them fall than try any fancy tricks in catching them. It took a number of punctures and cuts, some leaving still bothersome scars, for the present writer to learn this. Here's hoping some of the younger workers can get the habit of acting safely without being forced to it by personal mishaps!

Professor Beal was, indeed, an original, industrious, ethical, and likeable character, who so far as I know never did anything to hurt or harm another person.

Professor W. W. Cocke, although a member of the geographic distribution group of employees, had a desk for sometime in the "gut-shop". He was a small man with a high-pitched voice and always wore a frock coat and standing collar. He was an indefatigable worker and persistent through all difficulties in accomplishing what he set out to do. No one who has not actually seen him at work can have a correct impression as to how largely the wonderful collection of migration records now in the Bureau is the result of Professor Cocke's personal efforts. He had an insatiable appetite for the 2 by 5 slips, on which records from migration schedules and books, and in fact from every possible source, were written. He wrote them at office and at home and took them with him on his frequent trips as an agricultural extension lecturer. He wrote until he got writer's cramp in the right hand, trained himself to write with his left hand while the other was recovering, and thereafter used them alternately.

The 2 by 5 slips were selected no doubt as being the cheapest thing available that could be handled in card-catalog fashion. In a day when such new-fangled devices were not in favor Professor Cocke pushed ahead regardless of all obstacles and made a card index of bird distribution and migration records that the Bureau is proud of today.

He was a good deal like "the quiet Mr. Brown" in Bret Harte's poem "The Society Upon the Stanislaus" (by the way, an oft-quoted favorite of the Professor's)--he did not waste time and effort talking back to those who felt called on to advise him about his work. He listened, said little or nothing, and then quietly went on doing just what he had planned to do all the time.

Professor Cooke was fond of taking field excursions to observe birds and was largely instrumental in organizing and getting leaders for the annual spring series of trips sponsored by the District of Columbia Audubon Society. He was keenly interested in local avifaunas wherever he lived and published two editions of "Birds of the District of Columbia." He enlisted the cooperation of all observers, and as regularly as Monday morning (or any other day after a holiday) came, he was around bright and early with notebook and pencil, asking for notes.

Professor Cooke was a good observer of everything in Nature, and made a special study of ferns, of which he had a large collection of living specimens in the grounds of his rural retreat, called "The Wickiup." He was interested in his fellow man and kept informed about the movements and doings of all his acquaintances. While quiet and unobtrusive, he was nevertheless sociable and in a modest way did a good deal of entertaining both at "The Wickiup" and at his city home.

H. W. Henshaw belonged to a class deemed patriarchal by most of the scientific workers in the Biological Survey, as he had participated in some of the early western exploring expeditions--"The Wheeler Surveys", from 1872 to 1879. His remoteness from the Survey group was accentuated by a long period of absence in the Hawaiian Islands, during which he studied and wrote on the bird life there, so that when he came back to Washington it was distinctly as a representative of another generation.

This tended to make him not less, but more, revered, and as he was a scholarly, kindly, and courteous gentleman, he was liked by all. When I say this it will be seen that if I record some things not mentioned in funeral orations, it is without malice. I believe the peculiarities of individuals and any diverting incidents connected with them should be a part of our recollections of them as tending to round out our picture of the whole man and reveal him as a human being.

One of Mr. Henshaw's foibles made him extremely concerned about his health. A pin prick was a serious thing that must receive thorough aseptic attention. Dietary matters were of great importance, and especially regularity as to mealtime. At the outdoor dinners held twice a year on Plummers Island by the Washington Biologists' Field Club, lateness in getting everything ready was unavoidable. This made Mr. Henshaw uncomfortable, and he in turn made life miserable for the cooks who in those days were chiefly Dr. A. K. Fisher and the writer. Through repetition the situation finally called for a cure, so we provided ourselves with a special supply of apples--one of which was handed to Mr. Henshaw every time the pangs of hunger assailed him.

"Uncle Henry," as he was dubbed by Dr. Fisher and called by most of us, was very absent-minded. An extreme manifestation of this trait was his occasional leaving his office to visit someone in the Bureau, the exact business with whom, however, would slip his mind entirely by the time he found him. Then sometimes, as he said himself, the only way in which he could recall it was to go back to his own office, sit in his chair, and reconstruct his former train of thought.

This absent-mindedness and the hypochondria previously mentioned apparently were forerunners of a paranoid affliction that became so pronounced that Mr. Henshaw was forced to spend the last several years of his life in St. Elizabeth's Hospital. This is recorded in the interests of truth and completeness, but let me say that such an end is no disgrace, nor was it the result of a personal fault. It is something that may happen to anyone with a real mind, and Mr. Henshaw had one. His knowledge of the subject matter and his skill as a writer led to his editing the publications of the Bureau of American Ethnology while he was with that organization. He had a graceful, flowing style, did much editing when he was administrative assistant in the Biological Survey, and made many suggestions that were for the good of those who would profit by them; among that group the writer gratefully acknowledges himself to be one.

He liked to visit about the office, a practice that brought on an amusing incident, the telling of which needs a little prefacing. The section of economic ornithology had acquired for experimental use, among other things recommended as seed coatings to repel crows, a supply of blue powder. This was about as finely divided as can well be imagined, and the tiniest speck of it had the property of spreading as if its mission were to turn the world blue. I sometimes said that the package (a few pounds) we had was enough to change the color of all of the oceans. On one of Mr. Henshaw's calls the box of blue powder was lying open. "What's that stuff?" he said, poking his fingers in it. The deed was done then, so we said nothing. He had a habit of running his finger through his gray beard, which he presently did. A blue streak appeared and then another. What he thought or said when he discovered what happened I never learned. Though it does not concern Mr. Henshaw, another episode in the history of that blue powder is worth recording. When the section moved from the Bieber Building to Building F it was agreed that we would leave that one package behind, and we thought this was understood by all. It was--by all but one. That one--L. O. Jackson--now at Colorado Springs, Colo., made a trip of inspection to see if anything had been left behind, found the package of bluing and bore it in triumph to our new quarters. You can imagine the feelings of the rest of us at the failure of our well-laid plan--the discarded cat had come back. Desperate now at the charmed life the package bore, a guard of determined men escorted it to the Highway Bridge and dumped it into the Potomac.

Once referring to E. W. Nelson, and, of course, necessarily including himself, Mr. Henshaw said: "Anyone who lives to be 45 years old without being married is not a real human being." This was in jest, of course, for Mr. Henshaw was as good-hearted as men ever are. When Dr. Fisher first came to Washington he was taken all about the country by Mr. Henshaw in his equipage of the horse-and-buggy days and given many ornithological and botanical collecting experiences that he has

prized ever since. When the late C. W. Richmond (for a short time in the Biological Survey but for many years in the National Museum) was beginning his ornithological career he showed some of his bird skins to Mr. Henshaw. "Richmond, you make rotten skins" was the verdict, softened however by the invitation to come to Henshaw's place for lessons. This Richmond gladly did, and as upon arrival he found there William Brewster, another ornithologist he idolized, he received lessons from both of them, and felt himself about as near Heaven as one ever gets in this world.

Formal biographical sketches of the persons with whom these reminiscences chiefly deal may be found in the following places: Beal, F. E. L., *The Auk*, 1917, pp. 243-264; Judd, Sylvester D., *Who's Who*, 1901, p. 617; Cooke, W. W., *The Auk*, 1917, pp. 119-132; and Henshaw, H. W., *The Auk*, 1932, pp. 399-427, and autobiographical notes, in *The Condor*, vol. 21 (1919), pp. 102, 165, 177, and 217, and vol. 22 (1920), pp. 35, 55, and 95.

GENERAL NOTES

Addresses Audubon Convention.--What the wildlife conservation agencies of the country need is a dose of the same tonic that foresters took a generation ago, said Mr. Darling at the 31st Annual Convention of the National Association of Audubon Societies in New York on October 29. Instead of a dozen or more agencies working ineffectively at cross purposes, said the Chief, we need, as the foresters did, a strong and healthy, active federation that will formulate and carry out a national program of wildlife conservation. We are starting out, he said, on a national program with a two-hundred-year handicap, and if the birds and animals are going to be preserved outside of zoos and parks, the friends of wildlife had better get to work immediately. The Biological Survey was also represented at the convention by Frederick C. Lincoln, Clarence Cottam, and A. L. Nelson, all of the Division of Wildlife Research.

Attend A. O. U. Meeting.--The Biological Survey was represented, officially or unofficially, at the 53d stated meeting of the American Ornithologists Union, held at the Royal Ontario Museum, Toronto, Ontario, Canada, October 22 to 24, by 13 members, including Mr. Henderson, W. L. McAtee, Dr. W. B. Bell, Dr. Harry C. Oberholser, F. C. Lincoln, Clarence Cottam, A. H. Howell, Miss May T. Cooke, Charles H. M. Barrett, Allen Duvall, Miss Ethel N. Jett, Mrs. Jane S. Elliott, and Earle R. Greene. An important program of papers on technical and popular ornithological subjects was presented during the three days' session, including the following by Bureau members: "Trends and Opportunities in Ornithological Work," by Dr. Oberholser; "Notes on Research and Conservation Program," by Dr. Bell; "Migration of the Eastern Evening Grosbeak," by Miss Cooke; and "Economic Ornithology and the Correlations of Laboratory and Field Methods," by Mr. Cottam. Following Dr. Bell, Mr. Henderson outlined the Bureau's program of waterfowl protection and restoration.

Filling the only vacancy existing, Edward A. Preble, recently retired member of the Bureau, was made a fellow of the Union, the highest class of membership. Dr. T. S. Palmer, also retired, and Mr. McAtee, were reelected secretary and treasurer, respectively, and Dr. Oberholser was reelected a member of the Union's council. The Union Brewster Medal, for the most outstanding book in ornithology published during the previous five years, was awarded to Herbert L. Stoddard for his book, "The Bobwhite Quail." When this book was published, Mr. Stoddard was on the staff of the Biological Survey.

Inspects Fur Station and Prospective Refuge.--On his way back to Washington from the Toronto convention of the A. O. U., Mr. Henderson inspected a prospective refuge area in the Montezuma Marshes, near Seneca Falls, N. Y., and later made an inspection trip to the Bureau's Fur Animal Experiment Station, at Saratoga Springs, N. Y.

Advises Pennsylvanians.--En route back to Washington from the A. O. U. meeting in Toronto Mr. McAtee visited a tract near Bellefonte, Pa., for the purpose of recommending wildlife-management plans.

Plan National Wildlife Conference.--Mr. Henderson, H. P. Sheldon, and Dr. W. B. Bell on October 10 attended an informal meeting held in the offices of the American Wildlife Institute in Washington, to discuss preliminary plans for the American Wildlife Conference being sponsored by the Institute and scheduled for February 3 to 7. It was agreed that those present should act as a general planning committee for the conference, and arrangements were made for further meetings. Further details were discussed also at meetings held on October 17 and November 1 and attended by Dr. Bell, Frank G. Ashbrook, and Chas. E. Kellogg.

Abstracts Articles on Wildlife Management.--On October 2 appeared the first (Sept. 1935) issue of Wildlife Review, a mimeographed publication prepared by W. L. McAtee with the primary purpose of abstracting articles bearing on wildlife management. Established for the benefit of employees and cooperators of the Bureau, Wildlife Review has been designed to cover the field of wildlife management in a comprehensive manner. Suggestions as to topics to be covered and as to other ways in which the work can be made more helpful will at all times be welcome, says the first issue. Contributions of papers for abstracting, especially of those appearing in separate form, or in the less familiar periodicals were also invited. "It is intended," says the publication's foreword, "to abstract all pertinent papers appearing from 1935 on and eventually to list the more important of previous publications. No regularity of issue is promised but the Review will appear from time to time as the material on hand warrants."

Correspondents who had received copies of the first issue have spoken highly of the publication, calling it "a great contribution," "interesting," "very valuable," "most useful," "a fine service," "a thing long needed," and "greatly appreciated." "Every investigator will find it indispensable," says Ralph T. King, of the University of Minnesota, "if future copies contain the same amount and kind of information as was contained in the first copy." The work, he said, "is perhaps the thing we have needed most in our wildlife work for several years past." Wallace B. Grange calls Wildlife Review the "most significant publication" that he has received in many months. The Biological Survey, he says, "is to be congratulated on this contribution to field men working with game. The editor's comments are especially pertinent and should be enlarged, upon occasion, for the gist of his critical examination may be of as much importance as the paper reviewed." Similarly Paul L. Errington, of the Iowa State College, writes to Mr. McAtee: "I like the concise, clear way in which you sum up the significant essentials of each paper and give the reader something of an idea as to contents, in case he wishes to look up the original." The work, in the opinion of Rudolph Bennitt, of the University of Missouri, "will give added impetus to the wildlife research the Bureau is sponsoring and to that done elsewhere." These comments are typical of many others, and Mr. McAtee states that he is much encouraged by the reception given the first issue.

ADMINISTRATION

Goes to Resettlement Administration.--William Howard Gammon who has been connected with the Bureau since July 27, 1931, handling pay roll work and since reorganization of the Division of Administration in charge of the pay roll unit of the Personnel Section, was transferred on October 1, 1935, to take charge of the Resettlement Administration's pay roll office, which employs a large force of clerical assistants. Walter J. Heison has been advanced to the position held by Mr. Gammon.

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" (Admin. F. O.) series:

- No. 50. Revision of the regulations of the Department. (October 3.)
- No. 51. Purchase of anti-freeze compound for use in Government-owned automobiles. (October 7.)
- No. 51. Amendment No. 1. (October 15.)
- No. 52. Preparation of vouchers - copies required. (October 9.)
- No. 53. Limit of eight hours a day for laborers and mechanics on Government work; violations by contractors and subcontractors to be reported. (October 18.)
- No. 54. Cash discounts - prompt submission of pink Form Bi-200b and Form 1034 vouchers. (October 21.)
- No. 55. Gear and bearing lubricating greases. (October 28.)

PUBLIC RELATIONS

The New Directory of wildlife agencies, compiled by Frank G. Grimes, has been issued as Miscellaneous Publication No. 231, and entitled "Officials and Organizations Concerned with Wildlife Protection, 1935." The new publication, the 35th annual edition of the directory, is intended to meet the needs of officials charged with the administration and enforcement of game laws, and for the convenient use of persons desiring to communicate with officials and organizations concerning wildlife conditions throughout the United States and Canada. The directory includes only those organizations that are national or State-wide.

Annual Summary of Game Laws Issued.--Abuse of hunting privileges is not the sole cause of the decrease of game in this country, but this fact should not lead sportsmen to underestimate the importance of hunting regulations, says the thirty-sixth annual summary of Federal, State, and Provincial game laws, Farmers' Bulletin No. 1755, "Game Laws for the Season 1935-36: A Summary of Federal, State and Provincial Statutes", by H. P. Sheldon and Frank G. Grimes. Game laws, say the authors, have been with the sportsmen so long that they may have a familiarity breeding a neglect of their value. They point out that: "Although there are certainly heavy losses to game through natural causes, the loss due to hunting may have the effect of the proverbial last straw, and it is at the same time the loss over which man

can have the most definite control. The restoration of habitat is necessary to a future game supply, but an adequate breeding stock is indispensable. Destruction of the breeding stock of today cannot be offset by restoration of nesting areas for the future." Prepared for the information of hunters, farmers, and others interested in wildlife and for the use of Federal and State enforcement officials, the new publication constitutes a convenient synopsis of the laws in ready-reference form. It also reviews the Federal, State, and Provincial game legislation for the year and lists Federal enforcement officers throughout the country and the State officials from whom copies of game laws may be obtained. The new bulletin has a title-page illustration adapted from the drawing made by Frank W. Benson for the Federal migratory-bird hunting stamp for this season.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Game laws for the season 1935-36: A summary of Federal, State and Provincial statutes, by H. P. Sheldon, Chief, and Frank G. Grimes, administrative assistant, Division of Public Relations. Farmers' Bulletin No. 1755, 38 pp. Oct. 1935. Received Oct. 23.
- Eliminating bats from buildings, by James Silver, regional director, Division of Game Management. Leaflet No. 109, 5 pp. Sept. 1935. Received Oct. 31.
- Food habits of the coyote in Jackson Hole, Wyo., by Olaus J. Murie, biologist, Division of Wildlife Research. Circular No. 362, 24 pp. Oct. 1935. Received Oct. 12.
- Officials and organizations concerned with wildlife protection, 1935, compiled by Frank G. Grimes, administrative assistant, Division of Public Relations. Miscellaneous Publication No. 231, 16 pp. Sept. 1935. Received Oct. 23.
- Migratory Bird Treaty Act regulations: 1935. Service and Regulatory Announcements--B. S. 83, 8 pp. Sept. 1935. Received Oct. 8.
- Federal regulations on hunting waterfowl explained. Mimeographed Leaflet BS-18, 4 pp. Oct. 1935. Received Oct. 10.
- Plants valuable for wildlife utilization and for erosion control, by W. L. McAtee, principal biologist and technical adviser, Office of the Chief. Mimeographed Leaflet BS-19, 11 pp. Oct. 1935. Received Oct. 29.

Press and Radio Information items, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Surplus big game offered for sale. Press statement 622-36. Released October 10.
- Duck season to open in North on Oct. 21. Press statement 685-36. Released October 19.
- Darling and Silcox rally Audubon members. Press statement 730-36. Released October 30.
- Annual summary of game laws issued by Biological Survey. Press statement 735-36. Released October 30.
- Two more "safety islands" for ducks in North Dakota. Press statement 737-36. Released October 30.
- Validity of Federal bird regulations again upheld. Press statement 753-36. Released October 31.
- Sand Lake, in South Dakota made haven for waterfowl. Press statement 776-36. Released November 1.

Every post office to be outpost of conservation. Clip sheet No. 901. Released October 6.

No rattle provided for the baby rattlesnakes. Clip sheet No. 902. Released October 13.

What of our Future Fur Resources? Radio talk by Frank G. Ashbrook, Section of Fur Resources, Division of Wildlife Research, broadcast during the National Farm and Home Hour, October 11.

When the Ducks Fly South. Radio talk by W. B. Bell, Chief, Division of Wildlife Research, under the auspices of Science Service, October 15.

New Interpretations of Duck Hunting Rules. Radio release 4757. Farm Flashes, October 19.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Ashbrook, F. G. First steps to improve breeding foxes. Natl. Fur News 8 (8): 8, 18, 19, illus. Aug. 1935.

-----Fur resources--the stepchild of conservation. Fur Trade Rev. pp. 22-26, illus. Aug. 1935.

Cottam, Clarence. Further notes on past periods of eelgrass scarcity. Rhodora 37 : 269-271. Aug. 1935.

-----Blue and snow geese in eastern United States in the winter of 1934-35, with notes on their food habits. Auk 52: 432-441. Oct. 1935.

----- and Uhler, F. M. Bird records new or uncommon to Maryland. Auk 52 : 460-461. Oct. 1935.

Darling, J. N. Mr. Sportsman! Can you take it? Natl. Waltonian 3 (3) : 3. Sept. 1935.

-----Desert makers. Country Gentleman 105 (10) : 5-7, 81, illus. Oct. 1935.

-----Let's save the ducks! Regulate hunting, don't stop it. Rotarian 47 (4) : 15, 58, 59, 60, illus. Oct. 1935.

Gabrielson, I. N. The alpenes of Mount Hood. Nature Mag. 26 : 18-20, illus. July 1935.

-----Must the antelope go? Amer. Forest 41 : 575-576, illus. Oct. 1935.

Kelso, Leon (with Estelle Kelso). A new Rhinoptynx from Argentina. Auk 52 : 450-451. Oct. 1935.

Lincoln, F. C. Raise ducks! Field and Stream 40 (6) : 34-35, 63-65, illus. Oct. 1935.

McAtee, W. L. Hibbert-Ware on the little owl [The little owl, an examination of its food habits, by A. Hibbert-Ware, School Nature Study, Feb. 1935]. Auk 52 : 478. Oct. 1935.

Munch, J. C., and Garlough, F. E. The application of statistical methods to pharmaceutical research: IV, Methods of recording drug action. Jour. Amer. Pharm. Assoc. 24 : 619-625. Aug. 1935.

Mushbach, G. E. Reclaiming the Bear River Marshes of Utah. Earth Mover 22 (10) : 16-18, illus. Oct. 1935.

Salter, J. C., II. A program of beaver management. Amer. Game 24 : 39, 47, 48, 55, 62, 63, 64, illus. May/June and July/Aug. 1935.

Sheldon, H. P. Guns and game: September shooting; rail; dove; the 28 and 410 as game guns; new target rifles. Sportsman 18 : 68-70. Sept. 1935.

-----Guns and game: Woodcock and grouse; fits about gun fits; cleaning from the muzzle; a new automatic. Sportsman 18 : 58, 59. Oct. 1935.

Zahniser, Howard. October. Nature Mag. 26 : 199. Oct. 1935.

----- In November. Nature Mag. 26 : 263. Nov. 1935.

WILDLIFE RESEARCH

Broadcasts on Science Service Network.---Dr. Bell on October 15 spoke over the Columbia Broadcasting System under the auspices of Science Service. His talk, entitled "When the Ducks Fly South," discussed waterfowl conservation problems, paying particular attention to the importance of scientific investigations. The Bureau's scientists, he said, "must provide the factual basis for the educational work in the national conservation program. More important still they must provide the data on which the hunting regulations are based." Copies of the talk as mimeographed by Science Service may be obtained from the Division of Public Relations.

Organizing Cooperative Research Units.---Ira N. Gabrielson left Washington on September 23 for points in Iowa, Oklahoma, Arizona, Louisiana, Mississippi, and Alabama. In Iowa he conferred with various members of the staff at Iowa State College, representatives of the State game commission, and with Logan J. Bennett, the newly appointed Survey representative in the cooperative research unit. Projects were outlined, and a program started. In Oklahoma he conferred with members of the Oklahoma Game Commission. He also spent two days on the Wichita Mountains Wildlife Refuge with O. J. Murie and H. Harrison Hoyt, going over the tentative research program being set up under the direction of Mr. Murie. In Texas conferences were held with State game officials, Dr. Walter P. Taylor, and various members of the staff at Texas Agricultural and Mechanical College, College Station. Arrangements were made for starting work of this unit. Dr. Taylor and Mr. Gabrielson went from there to Tucson, Ariz., for a conference with representatives of the Arizona Game Commission and the University of Arizona. On Mr. Gabrielson's return to Texas, he stopped at San Antonio to confer with members of the Division of Game Management and also visited the King Ranch near Corpus Christi. Then he proceeded to Gulfport, Miss., where he inspected the work being done by T. D. Burleigh, and conferred with him and with members of the Southern Forest Experiment Station staff, both at Gulfport and at New Orleans, La. The next stop was at Montgomery and Auburn, Ala., where arrangements were made for starting the work of the cooperative research unit in Alabama. Mr. Gabrielson returned to Washington, D. C., on October 18.

I. T. Bode visited the new cooperative unit in Connecticut in conference with the game officials and members of the Connecticut State College staff at Storrs. He assisted Dr. Paul D. Dalke, the Biological Survey representative, in this new cooperative unit in setting up the research and demonstration program. Mr. Bode also did the same type of work with the Virginia unit of which C. O. Handley is in charge. During his trip Mr. Bode visited the proposed demonstration areas and outlined an educational program for the first year's work in Virginia.

Begins Work in Alabama.--After spending a few days in the Washington office, Mr. Bode accompanied Harold S. Peters to Auburn, Ala., where the Alabama unit will be organized. Mr. Peters, who was for nine years with the Bureau of Entomology and Plant Quarantine working on parasites of wildlife, and who has also had considerable experience in the wildlife research work of the Biological Survey and other Bureaus, has been appointed associate biologist to be the Biological Survey representative in the new cooperative research and demonstration unit in Alabama.

Transfers to College Station, Tex.--Dr. Walter P. Taylor, for many years stationed at Tucson, Ariz., is being transferred to College Station, Texas, to head the Texas cooperative research unit. This station will undoubtedly have the most complicated biological problems in the cooperative program, and Dr. Taylor's long experience and fine biological training will make him particularly valuable in this new assignment.

Utah Representative Appointed.--Dr. Daniel I. Rasmussen is being appointed as the Biological Survey representative to handle the cooperative program recently arranged with the Utah State Game Commission and the Utah State Agricultural College at Logan. Dr. Rasmussen will be stationed at Logan.

Lectures on Waterfowl.--Dr. Harry C. Oberholser spent several weeks between September 9 and October 15, in company with the game management agents in Maryland, Virginia, and North Carolina, making contacts with sportsmen and others, and lecturing on the waterfowl situation. He visited a considerable number of towns between Havre de Grace, Md., and Southport, N. C., chiefly along or near the Atlantic Coast. Some fifty lectures were given to audiences of students of high and grammar schools, sportsmen, and the general public, and also a series of illustrated talks at a number of Coast Guard stations in Virginia, from Chincoteague to Smith Island. Much interest, he reports, was manifest in these contacts and lectures, and cordial local cooperation was received. This was particularly true in the case of the Coast Guard officials.

To Study Mosquito Control, Drainage, and Wildlife.--In accordance with a cooperative agreement between the Forest Service and the Biological Survey, Dr. W. S. Bourn, for the past 9 years associated with the Boyce Thompson Institute for Plant Research in its work in the Chesapeake Bay and Currituck Sound area, was appointed assistant aquatic biologist effective October 16 to assist in studies of the effects of mosquito-control and drainage operations on wildlife. The work is being carried on under the direction of the Division of Wildlife Research to provide the basis for recommendations as to future programs.

Mammal Research

Studies North American Mustelids.--In working out the relationships and distribution of the land otters (genus Lutra) of the Southwestern States, E. A. Goldman has found it necessary to check over all the North American otters, which heretofore have never been critically studied as to speciation. In connection with this study he is also examining some other little-known mustelids. As a result of his preview he is describing 12 new species and subspecies, 10 of which are otters.

Studies Classification of Mammals.--Dr. A. S. Pearse, head of the zoology department at Duke University, Durham, N. C., who is preparing a publication on the classification of the animal kingdom, visited the Mammal Section on September 25 to obtain data and references on classification of the Mammalia. He complimented the Bureau by saying that the quick and ready information enabled him to do exceptionally rapid work on the class Mammalia.

Confer at Mammal Laboratories.--Among recent visitors to the mammal laboratories were: H. M. Nornabell, Director of Mountain Lake Sanctuary, Lake Walls, Fla., and Mrs. Nornabell, on September 25; H. E. Wheeler, Birmingham, Ala., October 15; F. Carrington Weems, big-game hunter, naturalist, and Bureau cooperator, of New York City, November 2; Dr. Joseph Grinnell, Director of the Museum of Vertebrate Zoology, University of California, Berkeley, Calif., November 1; and John B. Lewis, Amelia, Va., November 2. Mr. Lewis collected mammals for Dr. C. Hart Merriam back in the early eighties, before Dr. Merriam became Chief of the Survey.

Tells of Bird Travels.--A. H. Howell gave a talk, illustrated with lantern slides, before the Business Women's Council, at the Covenant Presbyterian Church in Washington, D. C., on October 8. His subject was "The Travels of Birds."

Distribution and Migration of Birds

Banded-Duck Returns Grow as Season Opens.--Many returns from banded ducks have been received daily since the opening of the shooting season, F. C. Lincoln reports, with the comment that it looks as if some interesting and valuable information will be obtained even though the season is shortened.

Plan Waterfowl Survey.--Plans are now being formulated for an extensive check of the waterfowl population during the coming winter.

On Military Duty.--From August 15 to August 31 Mr. Lincoln was on duty with the Signal Corps Board at Fort Monmouth, N. J., in connection with a reorganization of the Pigeon Service. He holds a commission as captain in the Signal Corps Reserve.

Inspects Work on Migratory Waterfowl Refuges.--From September 7 to October 20, Mr. Lincoln was engaged on an extensive trip through the West to inspect migratory waterfowl refuges and determine their desirability as banding stations. Starting at the Valentine Migratory Waterfowl Refuge in Nebraska, he visited the following refuges and refuge projects: La Creek, Lake Andes, Waubay, and Sand Lake, in South Dakota; Arrow-wood, Upper and Lower Souris, Des Lacs, and Lostwood, in North Dakota; Medicine Lake, Pablo, Nine Pipe, the National Bison Range, and Red Rocks Lake in Montana; Bear River, in Utah; Minidoka, in Idaho; Lake Malheur - Blitzen Valley, Upper and Lower Klamath, Clear Lake, and Tule Lake, in Oregon; and the Sacramento and Salton Sea, in California. Portland, Oreg., also was visited for conferences with Regional Director Rush and Wm. L. Finley, while field officers of the Wildlife Research and Game Management Divisions were visited at Sacramento, Berkeley, Los Angeles, and the Imperial Valley, Calif.; and Albuquerque, N. Mex. On the return trip, Mr. Lincoln stopped at Springfield, Ill., to assist the U. S. Attorney's office in upholding the waterfowl shooting regulations before the Federal Court.

Interesting Banding Returns Received.---An osprey, banded June 19, 1914, by Howard H. Cleaves at Gardiner's Island, N. Y., was found dead on June 1, 1935, at the same locality. As this bird was a juvenile when banded, its age is known to be 21 years, the record longevity since the beginning of the banding work. Another interesting return is that of a barn owl, banded May 16, 1925, at Claremont Calif., and found dead August 27, 1935, at Ontario, Calif. Two black ducks, one banded September 28, 1934, at Flanders, Long Island, N. Y., and the other banded March 25, 1935, at Brewster, Mass., were shot by an Eskimo June 15, 1935, at Hopedale, Newfoundland, Labrador. A Lincoln sparrow banded May 8, 1935, at Wantagh, N. Y., was recovered October 1, 1935, at Mal Bay, Gaspe County, Quebec. A herring gull banded June 25, 1934, at Gravelly Gull Island, Delta County, Mich., was found dead August 15, 1935, at Buckroe Beach, Va. A Canada goose banded April 5, 1935, at Earleville, Md., was shot about August 1, 1935, on the Kotak River, Mistake Bay, Quebec. A Canada goose banded April 5, 1935, at Earleville, Md., was shot about August 1, 1935, on the Kongut River, Hopewell Sound, Quebec. Both of these Canada geese were shot by Eskimos. A red-tailed hawk banded April 14, 1931, at Fairdale, N. Dak., was killed in June 1935, at Victoria, Tex. A great horned owl banded May 5, 1928, at Indian Head, Saskatchewan, was shot June 19, 1935, at Qu'Appelle, Saskatchewan. A junco banded October 21, 1926, at Oliverea, N. Y., was retrapped and released July 28, 1935. A golden-crowned sparrow banded March 29, 1933, at Berkeley, Calif., was captured and released July 9, 1935, at Luckyshot, Alaska. Two Leach's petrels banded July 17, 1929, at Great Duck Island, Maine, were retrapped and released at the same locality on July 30, 1935.

Food Habits Research

Inspect Mosquito Control in East.---Accompanying W. H. Marshall, Mr. Cottam left September 26 for points in Delaware and New Jersey to investigate mosquito-control projects and help outline methods that would be less injurious to wildlife interests. While on the trip Mr. Cottam made an inspection of eelgrass conditions in Barnegat Bay and reported on the abundance of migrating waterfowl. He left Mr. Marshall at Trenton, N. J., and returned to Washington on October 1.

Mosquito Control in California Investigated.---Johnson A. Neff spent two weeks in September studying the extent of mosquito control in California and its probable effects on wildlife. In general, he found that control operations would have little or no injurious effects. In a few cases, where it appeared that serious damage would be done, attempts were made to devise means for preventing adverse results.

Inspects New York Areas.---En route back to Washington after attending the A.O.U. convention, Mr. Cottam inspected waterfowl conditions and food resources on Lake Champlain and other areas in New York State.

Examine Proposed Refuge Area.---Between October 23 and 26 Neil Hotchkiss in company with Dr. W. S. Bourn examined the waterfowl food resources of proposed refuge areas in eastern Virginia, eastern Maryland, and Delaware. They set out two experimental plots each of plants of eelgrass (Zostera marina) in Virginia and Maryland. These plants were collected by T. H. Scheffer in Puget Sound, Wash. Seeds also collected in Puget Sound were sown in each plot. Because of the freedom from disease of Pacific coast eelgrass, the results of this transplantation will be watched with special interest.

Investigates Waterfowl Food Resources.--T. H. Scheffer spent some time during September on a study of waterfowl food resources in the State of Washington. A number of plantings of wildcelery and wildrice were made.

Studies Crow Control.--S. E. Aldous left Denver, Colo., October 1, to spend the winter in Oklahoma and Texas, studying crow-control methods.

Inspect Wildlife Resources in Coastal South Carolina.--On October 6 Clarence Cottam and Neil Hotchkiss left Washington to make an inspection of wildlife resources in the Santee-Cooper River area of coastal South Carolina. On the 10th they submitted a brief and testified at the Santee-Cooper Power Project hearings, and pointed out that great destruction to wildlife would result if this project should be consummated. On their return they inspected a proposed waterfowl-refuge area in Pamlico County, N. C. A number of inspections of important eelgrass areas along the coast also were made.

Proposed Refuge Area Inspected.--F. M. Uhler in the latter part of September made field examinations of the San Simon Valley on the Arizona-New Mexico border; the Bosque del Apache Grant along the Rio Grande; and the Bitter Lake - Salt Creek area along the Pecos River north of Roswell, N. Mex.

Studies Bureau's Methods.--R. W. Darrow, of the New York Conservation Department, was in Washington October 1 to 5 studying methods the Bureau uses in making stomach examinations of predators and gallinaceous birds.

Fur Resources

Make Trip Through New York State.--Frank G. Ashbrook and Chas. E. Kellogg visited various points in New York State September 19 to 27. En route they conferred at Baltimore, Md., with Dr. G. W. D. Hamlett, embryologist of the Survey, on his research studies of the coyote conducted in cooperation with the Carnegie Institution of Washington. September 21 and 22 were spent with Chas. F. Bassett, Director of the Fur Animal Experiment Station, Saratoga Springs, N. Y., reviewing current work and outlining new experiments with martens and minks. The following day they visited one of the largest and oldest fox and mink farms in the East, and discussed feeding and management practices with the owner and the caretaker. At Cornell University on September 24 they had an opportunity of seeing the recently started research work in mink nutrition and of inviting the professors in charge to visit and inspect the station at Saratoga Springs and its equipment and pens. In New York City during the following 3 days records were made of several dealers' appraisals of some 200 experimental rabbit skins produced at the Rabbit Experiment Station in California, and conferences were held with other members of the trade.

Advises Anti-Smuggling Committee.--Mr. Ashbrook was called to New York City on October 15 to assist fur tradesmen in organizing the work of a committee to study ways and means of preventing the smuggling of silver-fox pelts from Canada to the United States.

Testifies for Postal Authorities.--Mr. Kellogg, called on October 23 as a witness by the Post Office Department in a hearing regarding alleged unscrupulous rabbit promotions, gave expert testimony on feed costs as shown by results obtained at the U. S. Rabbit Experiment Station.

Prepares Comprehensive Report on the Coyote.--Dr. G. W. D. Hamlett has prepared for the Bureau a comprehensive preliminary report on the embryological research work he is doing on the coyote for the Survey in cooperation with the Carnegie Institution of Washington, at Baltimore, Md. Through these studies it is hoped to establish the breeding season, gestation period, and the number of litters the coyote produces per year. Dr. Hamlett has examined some 450 generative organs of the coyote collected by hunters of the Division of Game Management during the past 3 years. These specimens were taken during every month of the year and from 12 States. In this preliminary report Dr. Hamlett suggests that the coyote breeds on the average about February 1, whelps its young about April 1, produces but one litter a year, and does not breed until late the second winter after being whelped, but he will thoroughly check this preliminary work with many additional specimens this year before making a definite commitment. This fundamental, carefully planned research work is very badly needed with reference to other fur animals.

Seek Facts on Fur Value of Wild Rabbits.--Through the cooperation of Harold Haecker, District Agent of the Division of Game Management in the Shelter Belt Area, the Section of Fur Resources is to be supplied every two weeks with 18 skins of the black-tailed jack rabbit, white-tailed jack rabbit, and the cottontail from three Plains areas. These several skins are to be appraised in both raw and dressed state by experts of the fur trade to determine their value in comparison with the millions of pounds of rabbit skins annually imported from Australia.

Prominent Foreigner Visits Office.--Professor Per Tuff, professor of animal husbandry at the Veterinary College of Norway, in Oslo, paid the Washington office a visit to obtain information on what experiments are being undertaken with fur animals. Professor Tuff stated that the Norwegian Government contemplates starting an experimental fur farm next year. About 100,000 silver fox pelts were produced this year in Norway.

Publishes Series of Popular Articles.--Chas F. Bassett, Director of the Fur Animal Station, has started a series of articles in a local paper on the early history of the Fur Animal Experiment Station. The many favorable comments received indicate a keen interest in the station that is also reflected in a constantly increasing number of visitors. In all 41 persons visited the station during September.

Labor-Saving Methods and Equipment Being Installed.--Mr. Bassett and his staff have developed a new type of pan for freezing meat, so that now work that formerly required 7 days can be accomplished in 48 hours, thereby insuring not only a better preserved food for the animals but also a saving in electricity and conservation of storage spaces. More than 2,000 pounds of fresh tomatoes have been purchased, and frozen in tubs for use throughout the coming year. This has been accomplished

at a cost of little more than a cent a pound. A new type of self-waterer for minks developed at the station keeps the pens sanitary and dry, provides an abundance of fresh water, and saves labor. A new mink-catching box or cage takes advantage of the inquisitive nature of the mink, which formerly had to be caught by means of a net. The new contrivance also facilitates weighing and examination.

Find Feed Requirements of Rabbits.--George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif., has found that young rabbit bucks weaned at 8 weeks and weighing 4.91 pounds can by means of a self-feeder be made to weigh 9.81 pounds in 97 days, with a total feed consumption of slightly less than 37 pounds of concentrates, 9 pounds of alfalfa, and 10 pounds of green feed. Weaned does on self-feeders in 104 days increased their weight from 4.21 pounds to 9.91 pounds, with a feed consumption of approximately 31 pounds of concentrates, 14 pounds of alfalfa, and 10 pounds of green feed.

Rabbit Exhibit at County Fair Praised.--So effectively was the exhibit of the Rabbit Station presented at the Los Angeles County Fair that on special request it was continued another week in the poultry show. The nutritive value of rabbit meat, the durability and attractiveness of rabbit fur, the feed requirements for does and bucks, and the fertilizing value of rabbit manure were shown in displays of informative placards, live animals, dressed rabbit skins, and bags of feed showing desirable rations.

Director of Rabbit Station Attends Meetings.--The good work of the Rabbit Station is so well appreciated that Mr. Templeton is called upon to give many talks. On September 3 he discussed the factors that influence the cost of producing fryer rabbits before 63 members of the Orange County Rabbit Breeders' Association at Garden Grove, Calif.; on September 21. At a banquet of the California Flemish Breeders Association in Pomona he outlined the Station's present experimental program; and on September 23 he spoke at a meeting of the San Gabriel Valley Rabbit Breeders Association, at Temple City.

Attends 4-H Club Meeting.--A. E. Suitor, superintendent of the Rabbit Station, on October 3 attended a meeting of the Early Bird 4-H Club in San Bernardino, Calif., where he explained points to be kept in mind when judging and scoring rabbits. Several hutches of rabbits were judged by the young group under Mr. Suitor's guidance.

Disease Control

Addresses Fur Breeders.--Dr. J. E. Shillinger has recently been invited to attend several meetings of fur-animal producers and explain the more advanced methods of disease control. Enthusiastic State meetings have been addressed in Utica, N. Y., and Hershey, Pa., and a national meeting in Burlington, Wis. Officials of the associations offered support in advancing the Bureau's wildlife-disease research.

Disease Apparent in Lake States.--Increased evidence of disease as the cause of decrease in the grouse and snowshoe-hare populations in the Lake States was observed by Dr. Shillinger on a recent field trip in Wisconsin and Minnesota. Over the major parts of both States these species have become scarce, especially during the last few months. In one small area in Pine County, Minn., and Douglas County, Wis., they are relatively abundant, he says, but the local game protectors have reported sick animals. The Section of Disease Control, through the University of Minnesota and the Conservation Departments of that State and of Wisconsin, is concentrating efforts to procure for detailed examination as many suitable subjects from this area as possible.

MIGRATORY WATERFOWL

Tells Romantic History of Bull's Island, Cape Romain Refuge.--Edward W. Moore, junior refuge manager at the Cape Romain Waterfowl Refuge, S. C., has favored the Washington Office with a brief account of the romantic highlights in the early history of Bull's Island, which recently has been acquired by the Survey as an addition to the Cape Romain sanctuary. Mr. Moore's story runs as follows:

"In August, 1669, a fleet of three vessels, bearing a number of settlers bound for Port Royal, now a port in South Carolina, left England for the New World. These ships became separated on the voyage and one of them the Carolina, made a landfall on that part of the coast which now lies in Charleston County, S. C.

"Included in the list of colonists on the Carolina was a certain Col. Stephen Bull, whose name became, in some way not now known, so closely associated with Onisecaw, the Indian name of the island, that it became officially known to the colonists as Col. Bull's Island. It does not appear that Bull ever owned the place or had any material interest in it, the first warrant to the island being issued in 1696 to Col. Thomas Carey. Since those far off days Onisecaw has become the prosaic Bull's Island, but the older Negroes, who know the place, are prepared to swear that in the warm dusk or misty dawn, one may sometimes see the stately forms of tall warriors, long dead, roaming again, in spirit, through their ancient domain.

"In about 1690, the island seems to have become a haven for pirates, who found that its harbor offered good anchorage and that a great sand hill, called on the old plats 'Lookout Hill', and now washed away, furnished a fine point of vantage from which to watch for ships bound for Charleston, or coming out of that port. These the pirates could easily intercept, taking their cargoes and holding their passengers for ransom. Indeed, the island and its anchorage became such a thorn in the side of the new colony that, on July 5, 1707, an act was passed providing for a look-out on Bull's Island. The act reads, in part, as follows: 'and that Mr. Benjamin Webb, Jr., shall appoint a watch on Col. Bull's Island, consisting of one white man and two Sewee or other neighboring Indians.' The sum of forty shillings was allowed for the purchase of a canoe. From this time until about 1715, a watch was maintained on Bull's Island, so that the authorities in Charleston could be notified when a pirate vessel entered the anchorage. On a point which commands the harbor there are to be seen the ruins of a 'tabby' fort, a perfect

octagon, with each side 30 feet long, and with a quantity of very old imported Dutch or English brick inside the wall. There is no mention made of this fort in any known record, and it is perhaps possible that it was the work of pirates. 'Tabby' or 'Tappy', is a kind of oystershell cement much used by the early colonists and popular up to the time of the Civil War.

"During the Revolution, H.M.S. Active landed a party on the island and took away 40 cattle and 6 slaves, while during the Civil War, the place was shelled from the sea. There was an action on shore of some sort during the latter conflict, and I have found two "Minie" balls imbedded in trees cut in the woods. We frequently find brass buttons from the uniforms of Civil War soldiers, and now and then a brass or silver button of a much earlier period. We have also found a ha'penny of George III, and a silver coin of the Emporor Charles V, of Spain. All this would seem to indicate that the old live oaks might have some interesting tales to tell could one get them to talk."

The rest of the Island history, up to the time the Bureau took it over, says Mr. Moore, is largely a matter of dates and names.

Chooses New Refuges.--As a result of Mr. Salyer's trip outlined in the last issue of THE SURVEY, on which he is making inspections of proposed areas for migratory waterfowl refuges, many of the recommended tracts on the West coast and throughout the far West have been definitely selected for Government purchase.

Summer Construction Work Gratifying.--The contracts for engineering work--dams, dikes, and other structures--which were awarded last spring are in most cases nearing completion. Rough estimates, encompassing all the projects, indicate that the work is about 80 percent complete.

Resigns To Join TVA.--Charles Okey, who has been in charge of the engineering work on all of the projects south of Missouri, has resigned from these activities to accept a position with the TVA.

\$266,240 To Be Spent in 21 North Dakota Counties.--M. O. Steen, assistant North Dakota project director, is beginning an extensive program of small-refuge development made possible by an allotment from the WPA of \$266,240, for the development of 33 refuge areas in 21 North Dakota counties. These areas were obtained by Mr. Steen and his associates by means of perpetual easement, which grants to the Government perpetual right to impound water, fence, post, and otherwise develop the areas to make them thoroughly habitable and attractive to migratory waterfowl. The acquisition costs have been negligible, and the areas will be developed entirely with relief labor, with the necessary exception of a limited number of supervisory personnel. This type of conservation work is proving popular because it conserves a valuable water supply, and the benefits from this conservation are felt directly by the landowners who so generously offered easements on their land.

Two New Areas Studied for Possible Acquisition.--S. H. McCrory, Chief of the Bureau of Agricultural Engineering, has personally studied the Kankakee Marsh in Indiana and the Montezuma Marsh in New York, for the Bureau, a service that is greatly appreciated.

To Make Tule-Lake Engineering Study.--S. A. Young, having completed his engineering studies of the Toppenish Creek area in Washington State and the Ruby Lake area in Nevada, has been assigned to report on the engineering measures necessary for the rehabilitation of the Tule Lake area in California. Two field parties will assist him.

Resigns for College Position.--Logan Bennett, wildlife technician at the Trempealeau Migratory Waterfowl Refuge, Mich., left the employ of the Biological Survey recently, to accept a position as instructor at Iowa State College.

Plans Duck Food Plantings on Refuges.--W. F. Kubichek, in charge of Reconnaissance and Habitat Improvement, has been visiting refuge areas that have CCC camps and making studies of the biological factors peculiar to each. On the basis of these studies, he has drawn up plans for the planting of duck foods. CCC boys have been gathering duck-food seeds and tubers with great success, and storage facilities are being constructed to take care of the collections until the spring planting.

Inspects Mississippi Flyway Refuges.--A. C. Elmer, Assistant Chief, Migratory Waterfowl Division, left Washington last week to inspect refuges located in the Mississippi Flyway and outline plans for refuge management, with special reference to law-enforcement practices during the open season.

Assistant Appointed at Upper Mississippi.--Albert Van Siclen Pulling, who comes to the Biological Survey from the Forest Service, has been appointed assistant superintendent at the Upper Mississippi Wild Life and Fish Refuge.

Reviews CCC Activities at White River.--Amos B. Emery, in charge of Restoration and Development, who has recently returned from a field inspection tour, reports that the work of the CCC camps on the White River Migratory Waterfowl Refuge, Ark, is particularly difficult because the land-acquisition work is not complete, and it is necessary to carry on the work in a rather disconnected form, in order not to be developing the land before it is owned. The transportation problem also is acute. The whole area covers approximately 110,000 acres, and stretches several miles up and down the White River. In order to get from camp to many of the work projects, it is necessary to travel by boat such distances that there would be no working time left. It will, therefore, be necessary to establish side camps at the projects. The establishment of camps, on the other hand, requires dry land and since the work is in a boundless-swamp country, the only side camps feasible are on boats. At the present time, the Bureau is obtaining from the War Department a transfer of two house boats and has taken bids for the rental of other boats to be used as quarters for side camps. These boats will be moved to each project, and upon completion of that part of the work will be moved to the next. The Bureau, says Mr. Emery, is fortunate in securing the services of Project Director Hiram Bakes. Mr. Bakes has had a great deal of experience on river work with the Army Engineers and on other large water-impoundment projects with other companies, and also as a private engineer. As a project director, Mr. Bakes will have charge of the restoration and development work to be carried on by the CCC camps at St. Charles and at the head of La Grue Bayou.

CCC Boys Build Nesting Islands.--Mr. Emery reports that the CCC camp at the Squaw Creek Refuge in Missouri is engaged in building nesting islands and collecting duck-food seed. The headquarters project is complete except for landscaping and the completion of the road from the highway to headquarters. Mr. Hanick, camp superintendent, has a cooperative agreement with the county for obtaining rock from the county quarry. The county furnishes the gas and oil for Government trucks, the rock crusher and operator, and the dynamite and dynamite man to do the blasting. The Bureau furnishes the men for getting the stone out for the county and takes every other load. The Bureau of Agricultural Engineering has completed the dike and spillway structures so that next year there will be water on the area. A series of nesting islands have also been completed.

LAND ACQUISITION

Inspects Areas in West.--Mr. Dieffenbach completed early in September a field trip that took him to proposed refuge areas in Missouri, North Dakota, South Dakota, Nebraska, Wisconsin, Minnesota, Montana, Iowa, Utah, Michigan, Oregon, Idaho, Wyoming, Nevada, California, and Mississippi.

Personnel on the Move.--P. T. Kreager has reported to San Antonio in connection with land acquisition on projects in Texas, Louisiana, Arkansas, and Mississippi.

W. T. Krummes has left San Antonio, Tex., for a detail to the North Central States in connection with condemnation cases.

H. W. Hicks has returned from field work in Florida, North Carolina, New Jersey, and New York.

William Ackerknecht has reported at the St. Louis office in connection with examination work in the Central area.

Transferred.--Leah Lloyd, junior stenographer, has been transferred from Washington to the Ogden, Utah, office.

Crews Move South.--Surveying operations in the Dakotas, Nebraska, and Michigan are drawing to a close, and the crews are being moved to the Southern States.

To Come Back.--Steps are being taken to transfer, as opportunity permits, many of the surveying personnel from Resettlement Administration to the Biological Survey. These employees were formerly with the Survey.

GAME MANAGEMENT

Enforcement Force Gets Together.--The first meeting of the entire force of United States game management agents--and incidentally the first gathering of all enforcement personnel at one time in the history of the Survey--was held in Chicago, Ill., at the Brevoort Hotel on September 26, 27, and 28. The officers on the opening day listened to an inspiring address by Mr. Darling and a "pep" talk and statement of policies by Mr. Young. Frank P. Callaghan discussed game-law enforcement

work and the amended Federal regulations. C. A. Leichhardt spoke on the duties of the force and personnel setup, and W. E. Crouch told of his recent Alaska trip and with Guy W. Lane joined in the discussion of accounts and the preparation of vouchers. At a banquet held on Saturday noon, Mr. Darling made a snappy talk to the "boys", who expressed their appreciation of his fine spirit by prolonged applause. Mr. Callaghan acted as master of ceremonies, and the agents listened attentively to remarks by Howell Buntin, Frank Clarkson, Hugh M. Worcester, and Bernie Maurek. Invited guests were Tappan Gregory and Alfred M. Bailey, of the Chicago Academy of Sciences. The latter exhibited three splendid motion pictures of nesting birds and wild animals, one of the films showing the wild bird life on the Bear River marshes in Utah, one the prairie falcon and other interesting birds, and another a group of grizzly bears, moose, and white-tailed deer. At the sessions held following the banquet and on the preceding day the following papers were presented: "Cooperation in California and Use of the 'Squad'", by Hugh M. Worcester; "Enforcement Problems on the Eastern Shore of Maryland", by O. D. Steele; "The Dove Situation and Hunting in the South," by Eugene M. Boring; "The Use of Deputy Game Wardens," by Harry Bar-meier; "My Experiences in Enforcing the Lacey Act", by P. S. Farnham; "How I Handle My Federal Cases in Louisiana", by L. J. Merovka; "Objectives of the Federal Wildlife Protectors' Association", by John Q. Holmes; and "Buying Ducks Undercover", by John E. Perry, amplified by Stephen Creech. Each paper and the several talks were followed by extended discussions. The meeting was brought to a close with an address by Mr. Young. A group photograph commemorates the occasion.

Inspects Field Work.--Mr. Young returned to Washington on September 30 from an inspection tour of Oklahoma, Colorado, Nebraska, the Dakotas, Montana, Idaho, Utah, Nevada, Oregon, California, and Arizona, devoting most of his time to work on the big-game preserves. He reports many admirable improvements being made as a result of the work of the CCC enrollees, from an administrative point of view as well as with respect to wildlife conditions. Considerable time was spent in planning enforcement of the waterfowl regulations.

Visits Alaska.--W. E. Crouch left Washington on July 24 for an extended field trip, including points in Alaska, which he reached on the Bureau's new boat, the Brown Bear, on its maiden voyage from Seattle to Alaska waters. While in the Territory he visited Ketchikan, Wrangel, Petersburg, Admiralty Island, Juneau, Fairbanks, Matanuska, Anchorage, Afognak Island, Kodiak Island, and several of the Aleutian Islands, obtaining first-hand information on conditions important in connection with the work of the Alaska Game Commission. En route Mr. Crouch also visited the Niobrara Game Preserve at Valentine, Nebr., the Charles Sheldon Antelope Refuge, Nev., and the Elk Refuge, Wyo., as well as several field offices. He also attended the meeting of the game management agents at Chicago and returned to Washington on September 30.

Postmaster Cooperates.--Through cooperation between Postmaster Roy L. Cook, of Albuquerque, N. Mex., and Don A. Gilchrist, Regional Director in Region No. 3, an interesting piece of public-relations work has been undertaken. In the lobby of the Albuquerque post office a bulletin board has been placed for the special use of the Biological Survey to keep the public informed as to the wildlife restoration program, and every two weeks the regional office changes the display, which is made up of attractive wildlife pictures and literature concerning the Bureau's activities.

Game Preserve Administration

Hay Harvested at the Elk Refuge.--The harvesting of hay, begun at the Elk Refuge, Jackson, Wyo., on July 15, and completed September 13, resulted in 1,523 tons, or more than in any previous year. By the middle of October, 1,983 tons had also been purchased from nearby ranchers. In addition to the hay, there were harvested 21 acres of oats, which threshed 1,358 bushels. Early in September, 6 elk were seen on the upper part of the Izaak Walton League Addition, but none after the hunting season opened on September 15. All of the national forest adjoining the refuge will be opened to the hunting of elk this year during the entire season, or until November 30.

Surplus Big-Game Animals Sold.--A surplus of 22 bison and 10 elk remained after a call for bids that resulted on October 22 in the disposition of 27 buffalo and 7 elk from surpluses on the National Bison Range, Mont.; Niobrara Game Preserve, Nebr.; and Sullys Hill Game Preserve, N. Dak. Bids also were called for on mule deer, but none were accepted.

Birds at Charles Sheldon.--A Clarke nutcracker was observed on the Charles Sheldon Antelope Refuge, Nev., on August 29, the first of this species recorded from this area. Doves, abnormally abundant in 1934, have been scarce.

Beavers Transferred.--Several beavers have been trapped at Niobrara Game Preserve, Nebr., and shipped to Sullys Hill Game Preserve, N. Dak., for stocking purposes.

Sandhill Cranes at Wichita.--Late in the afternoon of October 2, I. N. Gabrielson, O. J. Murie, and H. Harrison Hoyt noted about 60 cranes flying over the Wichita Mountains Wildlife Refuge, Okla. In the evening these same birds were found at Lower West Cache Lake, where they had greatly decreased the number of frogs that had been frequenting the shore. On the morning of October 3, they were seen on a small barley field planted on the refuge, and later in the morning again returned to the lake without alighting. So far as the observers could learn, this is the first time that these spectacular water birds have used the lakes of the Wichita refuge. It is hoped that with the contemplated development of suitable water areas and better food conditions, the cranes will make the Wichita a regular stopping place.

Inspect Wichita Refuge.--U. S. Senator Elmer Thomas, with representative citizens of Lawton, Okla., visited the Wichita Mountains Wildlife Refuge on September 17 and again on September 25, inspecting, among other parts, one of the CCC camps, where Senator Thomas addressed the members. The Senator was greatly pleased with the improvements both for their recreational and their conservation value.

Earthquake and Drought at Bison Range.--Buildings were shaken at the National Bison Range, Mont., by an earthquake on October 18, but little damage was done. Forage is reported to be in good condition despite the driest season in 57 years, according to records kept at the adjacent St. Ignatious Mission. Fortunately no damage has been caused by fire, and an adequate fire-prevention system has been established.

Rattlesnakes Numerous on the Range.--Rattlesnakes continue to be a serious menace at the National Bison Range, the number killed up to the first week in October being 205.

Deer and Their Fawns at Niobrara.--Geno A. Amundson, in charge of the Niobrara Game Preserve, Nebr., reports the following regarding the white-tailed deer on that preserve: A 2-year old white-tailed deer and an older doe in the small herd at Niobrara both gave birth to fawns this year, the older doe's fawn arriving three weeks earlier than the other. Amundson recently noted that the two fawns were being nursed by the older doe, the young doe endeavoring to push her little fawn away from the older doe, but without success. The older doe is thin while the younger one remains in good flesh.

Buffalo Bull Destroyed at Niobrara.--A fine 6 year-old buffalo bull, transferred from the Custer State Game Preserve, S. Dak., to the Niobrara Game Preserve last February was much enraged by the handling incident to the transfer, and though turned out in a pasture by himself, in August he became dangerous, preventing employees of the CCC camp at this point from proceeding with their work. It finally became necessary to shoot the animal, and the carcass was donated to Indians of the Rosebud Agency, S. Dak.

Law Enforcement

Validity of Regulations Again Upheld.--Another legal attack on the Federal hunting regulations failed when Judge J. Earl Major in U. S. District Court in Springfield, Ill., on October 25 dismissed a bill of complaint asking that Federal officers be enjoined from enforcing this year's regulations. The plaintiffs alleged that the enforcement of the regulations would cause a depreciation in the value of property they had acquired as hunting grounds, but Judge Major declared that the plaintiffs had no property right in the migratory birds but "only such permissive privileges as the Governmental authorities may decree."

Confers with Enforcement Personnel in the West.--F. P. Callaghan, in charge of the Law Enforcement Section, left Washington on October 16 for a series of conferences that were to take him as far west as San Francisco, Calif. He planned to confer with regional directors, game management agents, and other members of the field personnel in Chicago and Springfield, Ill.; St. Louis, Mo.; Houston, Tex.; Albuquerque, N. Mex.; Phoenix, Ariz.; Los Angeles and San Francisco, Calif.; Reno, Nev.; Salt Lake City, Utah; Denver, Colo.; and Omaha, Nebr. While on the trip Mr. Callaghan planned especially to talk over with the field force matters in connection with preparing and handling of cases under the Migratory Bird Treaty and Lacey Acts. He expected to return to Washington about November 8.

Judge Warns Against Violations.--Federal Judge I. M. Meekins, of the Eastern District of North Carolina, recently addressed a grand jury as follows: "For the past 10 or 12 years persons coming into this court charged with violations of the Federal game laws have escaped with lectures or light fines in most instances. But the time has come when killing a swan or shooting a duck out of season will not be regarded as trifling offenses. These are grave offenses, for they constitute the willful violation of a solemn treaty between two of the greatest nations on this earth--Great Britain and the United States. *** Killing a duck certainly wouldn't

seem to be an offense serious enough to send a man to jail. But the violation of an international treaty is a mighty serious offense, and such violations will be treated as such in my court henceforth. Violators of the game laws who are brought before me in the future may expect a punishment commensurate with the conditions involved in the violation."

Importations

Interesting Species Admitted.--Among interesting species of birds recently imported were 5 boat-billed herons (Cochlearius cochlearius) from Brazil, 5 Tahitian lorries (Coriphilus peruvianus) from Papeete, Tahiti, and 2 racket-tailed drongos (Dissemurus paradiseus) from the Malay Peninsula. Among mammals were 7 hyrax (Procavia sp.) from Tanganyika, East Africa, 3 galagos or "bush babies" (1 Galago zuluensis and 2 Galago granti) from Cape Town, West Africa, and 3 almiquis (Solenodon) from the Dominican Republic, the last consigned to the National Zoological Park, Washington, D. C.

Predator and Rodent Control

Sees Field Work First Hand.--Albert M. Day returned to the Washington office on October 19 from an extensive trip throughout the West, inspecting field work in connection with the Shelterbelt project in Nebraska, Kansas, Oklahoma, and the Dakotas and visiting Bureau field headquarters in Colorado, Wyoming, Utah, Idaho, Washington, Oregon, Nevada, California, Arizona, New Mexico, Oklahoma, and Texas. Several ECW camps were visited where rodent control is being carried on in cooperation with the Indian Service, Forest Service, Division of Grazing, and the Soil Conservation Service. While in California, Mr. Day observed experimental grazing plots on the Plumas National Forest, where the Forest Service in cooperation with the Survey is conducting experiments on the effect of controlled grazing. Two adjacent plots, one fenced to exclude livestock and the other to exclude livestock and rodents, Mr. Day reports, show the marked influence of native rodents on revegetation. In the plot where livestock are excluded but rodents given free access, mice have taken so many seeds of valuable forage grasses that it contains about 90 percent weeds and only 10 percent grass. In the plot where both rodents and livestock have been excluded the reverse is true, and the grass here has made about a 90 percent comeback, while the weeds approximate only 10 percent of the growth. Outside these plots, where cattle and rodents have had normal access to the range, the area is in much better condition than in the plot where livestock have been excluded but where rodents have been permitted free access.

Two Coyotes in One Trap.--The capture of two practically full-grown coyote pups in one trap was the recent accomplishment of J. H. Sterrett, Biological Survey hunter in Wyoming.

Tularemia Results From Deer-fly Bites.--Leonard Holst, rodent-control foreman in Wyoming recently contracted tularemia, probably as a result of deer-fly bites.

Beaver Transplanted.--A live-beaver transplanting project in the creeks on the Ochoco National Forest in Oregon is being undertaken by District Agent Roy Fugate in cooperation with the Oregon State Game Commission and the Forest Service. Approximately 45 animals were placed on the forest during August and September.

Money Appropriated for Texas Predator Control.--An appropriation of \$4,200 for predatory-animal control was made by the Commissioners' Court of Pecos County, Tex., in August, to cover work for one year. Mr. Landon reports that during the last year, there were 109 bobcats and 861 coyotes taken in that county.

Bears Classified in Wyoming and California.--The State Game and Fish Commission of Wyoming has recently established districts in which the bear is considered predatory and has named others in which it is considered a game animal. In most of the national forests, the bear has been considered game, hunters being allowed one a year. In all areas of the State where the fact has been established that a certain bear has become predatory, it may be taken to protect livestock and game. The policy of the Biological Survey is to take bears only when it has been definitely proved that they are causing real damage to game or livestock, and to take as few as is consistent with the need for protection. The policy of the State Game and Fish Commission is thus in close harmony with the policy and practice of the Survey.

California revised its bear law during the last session of the legislature so as to class bears as game animals with an open season in November and December. The bag limit of two can be taken only with firearms or bow and arrow.

Black-tailed Prairie Dogs Shipped for Park Exhibit.--At the Bureau's request 16 pairs of black-tailed prairie dogs (*Cynomys ludovicianus*) were shipped by J. M. Boog-Scott, Jr., cooperative agent, from Lubbock, Tex., on July 24 to the city parks commissioner and director of the Mesker Zoo, at Evansville, Ind., where they arrived in good shape.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE
CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL
SURVEY AS A BUREAU, NOT TO "THE SURVEY" AS A PUBLICATION

Vol. 16

Washington, D. C., November-December 1935

Nos. 11-12

GREETINGS FROM THE CHIEF

THANKSGIVING SENTIMENTS seem to have an inescapable influence on Christmas and New Year's greetings phrased in time to reach the readers of THE SURVEY. The result, of course, is good. Each recurrence of Christmas with the prospect of a new year stimulates reminiscence, and we in the Biological Survey are especially fortunate in happy memories, our remembrances giving force to our good wishes for the future. Certainly, there is in this an element of thanksgiving that is a true and essential part of our feelings at the Christmas season.

Retrospection this year is especially pleasant. For one thing, the past few months have included a celebration of our fiftieth anniversary as a Federal agency. I haven't seen any members of the Bureau with unduly increased skull measurements during the year, but I am sure that we have all been enjoying some justifiable pride in a golden anniversary.

I presume, however, that the year has been most exhilarating for all of us and most significant for the Bureau because of Mr. Darling's energetic service as Chief of the Survey and his unique nation-wide influence for wildlife conservation. We have all felt the inspiration of his leadership, and we have all realized with high appreciation the force of his championship of the national program for wildlife restoration. We shall long remember 1935 as the year of the culmination of Mr. Darling's service as a member of the Survey.

For all these reasons the future looms with great encouragement. An aroused public of conservationists is supporting the Bureau's restoration program. The cause has not lost Mr. Darling. He continues as a strong advocate. And we have very reasonable hopes that before long the forces of conservation will be mobilized with an effectiveness the possibility of which would have surprised any of us only a short time ago.

I am sure that the cause can expect the best from the members of the Survey. People have looked surprised recently when I have said that for 20 years I have been getting paid for doing just what I enjoy most, but very few of the members of this Bureau would find anything astounding in this statement. You have always seemed to me to be having a good time in doing a good work well, and I wish all of us a happy future in continuing our work with this attitude.

Finally, I should not like to have my good wishes affect only the time spent in official work. In your homes, with your families and friends, in the places you most like to be, you all have my heartiest wishes for a Merry Christmas and a Happy New Year.

Washington, D. C.
December 5, 1935.

Ira N. Gabrielson

GABRIELSON SUCCEEDS DARLING

Honor Retiring and Incoming Chiefs

Mr. Darling, who resigned as Chief of the Survey to resume the responsibilities of his cartoonist engagements with a nation-wide syndicate, and Ira N. Gabrielson, his successor, were honored by Bureau members at a gathering in the Chief's office on November 15, the effective date of the change in administration. The following is a stenographic transcript of the remarks made on the occasion:

Mr. Henderson: It seems to me scarcely more than a day or two ago that I had the privilege of welcoming Mr. Darling into the Survey. What a change has taken place in the short time he has been with us! The Bureau was almost prostrated by a series of attacks upon it by powerful and selfish interests. Although conscious of having discharged their duties efficiently and faithfully, the members of the Survey were dazed by the blows that had fallen upon the Bureau--blows that were all the more grievous because they were undeserved. I had known Mr. Darling for several years, but many of the staff were not personally acquainted with him, although everyone knew him by reputation. We all had confidence in him, however, and we welcomed him almost with open arms, believing that he would be able to lead us out of our slough of despond.

Our confidence in Mr. Darling has not been misplaced. He had not been with us long before his keen perception enabled him to see what was wrong with the Bureau--and what was wrong with those who were attacking it. He reorganized the Bureau in the interests of smoother functioning and increased efficiency and was prompt to defend the Survey against unjust criticism. He took up the work of the Bureau earnestly and energetically. No one could have worked harder--in fact, he moved forward with such a stride that the rest of us had to run to keep up with him.

Mr. Darling had not been with the Bureau very long before he observed many cross currents within the Government service, as well as outside of it, working against the interests of wildlife, and he strove to overcome these obstacles. He attacked vigorously and forcefully every project that he believed would be inimical to wildlife, and he succeeded in focusing public attention on the needs of the wild fowl and in arousing interest in their welfare. After observing that plans for the development of the water resources of the country gave no consideration to the needs of wildlife, he had many warm arguments with those engaged in making such plans whose only interest, it seemed to him, was in the development of power, navigation, drainage, and irrigation. He has convinced them that no plan for the development of water should be made without giving consideration to the needs of our wildlife. He has worked hard to develop better cooperation from other Government bureaus, and we now have better cooperation than ever before. Largely through his own efforts he was able to obtain \$15,000,000 for the Bureau's restoration program. This is no mean sum, although it may seem relatively insignificant when compared with the enormous amounts that are being expended by the Government on other projects. It is enough to enable the Bureau to accomplish more in the way of creating migratory waterfowl refuges and breeding grounds in a couple of years than most of us had hoped might be accomplished in 15 years. These refuges that are being established for our waterfowl will remain as a memorial to Mr. Darling's ability and industry.

Another accomplishment, less conspicuous, but almost as noteworthy, has been the development of a feeling of loyalty and affection on the part of the personnel of the Bureau. All of the members of the Survey now feel that Mr. Darling has a personal interest in their welfare. There is not one amongst us who does not regard him as a personal friend. To illustrate the feeling along these lines I shall read a memorandum prepared by one of our stenographers and entitled by her "'Ding' Darling--Our Boss."

"He has resigned and left us, our dynamic, lovable boss. But we will not forget him.

"I entered the Biological Survey some few months after 'Ding' Darling became its head. I am only a stenographer in a comparatively large-size organization; but to me, as to every one else working under him, he was an ideal. He is a friend of the ducks, so they say, and so he has demonstrated many times in his brilliant career; but he is also a friend of humanity.

"I am writing of him not as the great conservationist he is and always will be, nor as the great cartoonist whose pen long ago brought him fame--I am writing of him as a man, the man whom the members of the Bureau of Biological Survey knew, the man who, although important enough to know personally most of the high officials in Government circles, from the President on down, and so busy that he many times forgot to eat, still had time to be interested in the affairs of those working with him. I use 'with' purposely, because that is exactly what this man of vitality made us feel that we were doing. He quite unobtrusively impressed us with the fact that we were all essential to his duck-raising business; consequently, he got willing aid and utter devotion from all.

"He knew all of his employees from the highest division chief down to the lowliest messenger. More than that, he was truly interested in our welfare. I got married several months ago. He was out of the city at the time, but he heard of it soon after his return. What difference, you might ask, would the marriage of one of the least of his employees make to an extremely busy Government official? I met him in the hall the next day; and as soon as he came close enough to recognize me, he came forward with his hand outstretched, with the famous 'Ding' Darling smile on his face. Clasp my hand, he offered his congratulations, and then added, 'Is he a nice boy?' Being very much in love and also firmly believing that my new husband was a 'nice' boy, I, of course, answered in the affirmative. With another smile and another wish for our happiness, he went on into his office, where several men of note awaited him, leaving behind him a girl fully convinced that he was the grandest person in the world.

"Best wishes, J. N. 'Ding' Darling! May your pen continue to bring you success, and may your dreams of a restored waterfowl population soon come true!"

Mr. Darling, everyone in the Bureau will miss you and we shall always think of you as a personal friend as well as the able, fearless, outspoken champion of the Nation's wildlife. We wish you many happy and prosperous years. May your shadow never grow less.

The Committee has sought to find some token that would serve as a slight expression of the esteem of the Bureau personnel, and I am pleased on behalf of the members of the Survey to present you with this shotgun--a straight-shooting gun for a straight-shooting man.

Mr. Darling: Mr. Henderson and members of the Survey, it is unusual for the corpse to rise up out of his coffin to listen to his own funeral oration. I don't like funerals, but if I ever have one I want it before I die. I could say a lot about the gun, but I won't. It is awfully hard to answer Boss Henderson. You know darn well there is nothing to what you've said about me. I owe you folks a vote of thanks. You folks have done the work, and I have gotten the credit. When I came to the Bureau you had confidence that I was going to do something for you. I have learned to see deeply into the character and ideals of the Biological Survey and to understand the importance of the Survey work to the future of this country. The Bureau of Biological Survey is one of the most important agencies in the United States. We have had up until this time only God looking after our wildlife. God needs a substitute. The responsibility is yours. The fight for wildlife is just beginning. I am enlisted in the army for the period of the war, and while outside of the Bureau, I will continue to fight for the good of wildlife. I think a great job can be done and I am going out to try it. I am tickled to death when I know I am going to leave the Bureau with such a man as Mr. Gabrielson to succeed me. The Bureau is in good hands. The king is dead! Long live the king!

Mr. Henderson: It gives me great pleasure to introduce our new Chief, Mr. Gabrielson. He has been with the Survey for 20 years. When I first knew him 19 years ago he was working on the food habits of birds. He was a big, strapping, energetic young fellow, full of enthusiasm for his work. After four or five years studying food habits, he desired to get into other phases of the Bureau's work and study it from different angles. He accepted the job of supervising rodent control work in the State of Oregon and for a number of years was engaged in the control work of the Bureau. He did not lose his interest in research, and published many articles on the birds and mammals of the West. Later he was made regional director and supervised regulatory as well as control work. He has had a broad experience in the Bureau's work--research, regulation, control, administration. I think the Lord was good to us when someone nominated Mr. Gabrielson for this new job. I don't believe a better man could be found. He has a thorough knowledge of mammalogy and ornithology, and is an outstanding botanist. I don't suppose there is anybody living who knows more about the flowering plants of the West than he does. Certainly, no one else has written about them in such an interesting way. Mr. Gabrielson has sound judgment, tact, and administrative ability of a high order. He is energetic, enthusiastic--and a good scout. It gives me the greatest pleasure to introduce him as the new Chief.

Mr. Gabrielson: Mr. Henderson and members of the Survey, I am still feeling more regret at the Chief's leaving than any elation over getting this new job. Mr. Darling, when I was out in Oregon the boys had organized a new club called the "Ding Darling Wildlife Club." They could be one of three kinds of members--"Dingers", "Humdingers", or just plain "Dings". I don't know whether I'll ever be a "Dinger", I might be a "Humdinger", but I never hope to get to be a "Ding". That's all I've got to say.

Secretary Wallace Praises Darling

In a press statement issued on November 11 announcing the change in Biological Survey Chiefs, Secretary Wallace said, "I'm mighty sorry to see 'Ding' leave. He has fought effectively, in a typically 'Ding' Darling way, for a program of genuine social

and economic value. He leaves an invigorated Government bureau that is much better equipped to carry on because of his work there." Mr. Darling, in accepting Secretary Wallace's invitation in March, 1934, to head the Federal Government's work in wildlife conservation, did so, the announcement pointed out, with the understanding that the newspaper syndicate, which has a contract with him, could grant him leave from his cartooning for only a short time. At the Secretary's invitation he has continued with the Department long beyond the period originally contemplated, and leaves now only upon the insistence of the outside interests to which he is obligated. Mr. Darling has made real contributions to the Nation's wildlife program, both before his connection with the Department and during it. He will continue to be active in efforts to bring together the multitude of wildlife groups of the United States into what he considers a most essential organization--a national federation of wildlife organizations."

The statement quoted Mr. Darling, as follows: "I'm sorry to leave. I've enjoyed my work here--both the pleasant associations and the fights to get a true national appreciation of the social and economic necessity of restoring our wildlife resources. I'd like to stay longer. But I can't. The Bureau of Biological Survey is in excellent hands. Gabrielson is a master executive and one of the best equipped men scientifically in the United States. I have come to realize that most of our wildlife conservation troubles are due to lack of organization among those who are interested but ineffective in the conservation of wildlife. There is no mass strength to enforce adequate legislative and executive attention to wildlife interests. Every other element of American life has a national organization to get effective results. Wildlife interests remind me of an unorganized army, beaten in every battle, zealous and brave, but unable to combat the trained legions who are organized to get what they want."

Mr. Darling joined the Department in March, 1934, after having served for three months on the President's Committee on Wildlife Restoration. This Committee recommended to the President the immediate acquisition of five million acres of submarginal agricultural land in 44 States, and the gradual acquisition of an additional eight to ten million acres for wildlife production and related purposes. Prior to that Mr. Darling had gained national recognition as a leader in wildlife conservation and restoration as a member of the Iowa Fish and Game Commission, of the Iowa Planning Commission, of the Advisory Board, Migratory Bird Treaty Act, the National Association of City Planners, the Des Moines City Planning Commission, and of the Des Moines Park Board. As Chief of the Survey Mr. Darling began putting into effect the program recommended by the President's Committee. He obtained funds for the Government's largest effort to establish wildlife refuges. He reorganized the bureau for more effective prosecution of research, education, and law enforcement. He worked for a unification of the Government's efforts in the wildlife field, and for the coordination of Federal, State, and private efforts.

New Chief Has 20-Year Record With The Survey

Mr. Gabrielson has become the head of the organization in which he has spent all but three of the years since he was graduated from Morningside College, Sioux City, Iowa, in 1912. He is the sixth Chief of the Survey. Leaving Marshalltown, Iowa, where he had been instructor in natural science in the high school for three years, Mr. Gabrielson, because of his interest in bird study, came to the Biological

Survey on October 1, 1915, though the salary was less than that he had received at the high school. With this interest and with an experience gained in earlier investigations, however, he gave such excellent service that his rise in the Bureau began almost immediately. As an assistant in economic ornithology during his first years in the Bureau, he took a leading part in the investigation of the introduced starling and collaborated on the final report. In 1918, during the war emergency, Mr. Gabrielson did rodent-control work in the important crop regions of North Dakota. Rapidly becoming efficient in this part of the Bureau's work, he was in 1919 placed in charge of all cooperative rodent control operations in Oregon. Here he had much pioneer work to do in connection with the development of the cooperative work in the State, in bringing together ranchers, stockmen, and county and State officials for joint action in the destruction of rodent pests. He was especially active in investigating the economic status of the rodents in relation to farm, range, and forestry production, and in field trials for improving control methods then in use.

On July 1, 1931, Mr. Gabrielson was appointed to the newly created position of regional supervisor of both predator and rodent control in Washington, Oregon, California, Nevada, and Idaho. Throughout his service in the Northwest he intensified his scientific interest in natural history, becoming an authority on the birds, mammals, and plants of the region. He also took an active interest in game-law enforcement and in other conservation activities. When Mr. Darling established the new Division of Game Management in July, 1934, Mr. Gabrielson became the directing head of this division's activities in the Pacific Coast States and Nevada. After thus gaining wide experience in the Bureau's economic and conservation work, he returned to its scientific organization last May, becoming consulting specialist to the Chief, and assistant chief of the Division of Wildlife Research.

During the 20 years of his service with the Bureau in Washington and as a field officer traveling extensively throughout the country, Mr. Gabrielson has lost no opportunity to gather information and prepare reports on wildlife and wildlife conditions. He is the author of more than 250 articles, pertaining to bird, mammal, and plant life, published in leading ornithological magazines, farm papers, bulletins of various kinds, and publications of sportsmen and other organizations throughout the country. He is author also of a book on "Western American Alpines", and of a report on the birds of Oregon, now in manuscript. He is a member of the American Ornithologists' Union, Wilson Ornithological Club, Cooper Ornithological Club, Ecological Society of America, and Washington Biologists' Field Club. Mr. Gabrielson was born at Sioux Rapids, Iowa, on September 27, 1889. He was married on August 7, 1912, to Clara Speer. They have four children.

"Bird Lore" Lauds Darling and New Chief

Bird Lore, the magazine organ of the National Association of Audubon Societies, in its November-December issue publishes the following editorial, which is here reproduced because of its apt expression of sentiments shared by the Bureau associates of Mr. Darling and Mr. Gabrielson:

"'Ding' Darling is through! After more than a year and a half of the most vigorous, selfless, and inspiring service to wildlife this country has ever known, he has resigned 'for personal reasons.' His tenure as Chief of the Biological Survey was held at large cost to him, and it is not difficult to understand his desire to return to his position as premier American political cartoonist. As he leaves, he must carry with him the good wishes of those millions of Americans to whom the Nation's outdoors is one of its most precious heritages.

"Mr. Darling peculiarly exemplifies what the French call un original. He is as effective a master of the pen and brush as their own cartoonist, Daumier, but even his most scathing caricatures have always possessed a quality the Frenchman's lacked, a kindliness and a sympathy toward the average man. The possessor of a rarely vigorous mind, he is swift and sure in understanding. There has been an essential rightness about his judgments, and when he has something to say no one can fail to listen. He not only draws cartoons; he speaks them and writes them. His 'bow-legged girl' who was left home from the picnic will long live as the symbol of neglected wildlife in the United States; everybody felt sorry for her, but not sorry enough. There is a homeliness, in the finest sense of that word, to Mr. Darling's work, and it has been his good fortune, growing out of his humanity, to win the respect of all groups, whether they agreed with him or not.

"More than anyone else, with the possible exception of Theodore Roosevelt, he has awakened the people of this Nation to the wild fire of destruction that has been consuming their outdoor resources. While he has done an outstanding piece of work in reorganizing the Biological Survey and quickening the laggard Government establishment of wildlife sanctuaries, his greatest service has been that of publicist. There has seemed to be an end of neither his energy nor his faith. If he could not secure the dollars he needed for wildlife restoration in the manner of other seekers after the farflung billions, he 'sucked them from somebody else's barrel with a straw.' While he sought for reinforcements at headquarters, he carried on constant guerrilla raids against the enemy's outposts. The enemy, in this case, was the vote-seeking politician and the bureau-minded Government employee. His outspoken comments on fellow Washingtonians have made civil servants, here and abroad, all but gasp.

"The Administration has been accused, in a widely circulated book, of having bought off its most feared critic with a Government bureau. If there were any such intention, disillusion rode behind its saddle. From his place inside the ring, Mr. Darling gave a round-by-round account of his fight for wildlife.

"As we wish the retiring Chief the realization of whatever goal has taken him back to private life, we find our dismay at his going considerably diminished by a firm belief that he has not yet said his last word in behalf of wildlife. We can no more visualize 'Ding' in an ivory tower with his drawing-board, while the forces of destruction rage on, than we can an old fire-horse become deaf to the clanging of the bells.

"To Ira N. Gabrielson, who follows him, we can wish no greater success than that he fill 'Ding's' shoes. He comes to the leadership of the Biological Survey after a long and distinguished career as a field naturalist. He is young, vigorous, and well trained. Through his years of association with the Oregon Audubon Society and Bird-Lore, he must have gained an appreciation of what this organization and its members stand for. The demands upon him will be many. Reveille has already been sounded by his predecessor. His opportunities are enormous. He will find the road neither smooth nor straight. As he undertakes a task whose responsibilities would dismay most men, Bird-Lore wishes him the satisfactions of complete success."

GENERAL NOTES

Confers in the West.--When announcement was made of his appointment as Chief, Mr. Gabrielson was in the West, having left Washington on November 1. During his brief trip he conferred with field officers in Portland, Oreg., and Berkeley, Calif., and assisted in setting up the cooperative research project at the Oregon State Agricultural College in Corvallis. In Logan, Utah, he conferred with members of the Utah State Game Commission and the State Agricultural College with regard to the research unit at Logan.

Foresters Study Game Problem.--Mr. Gabrielson and Mr. Darling were speakers on November 15 at a meeting held by the Society of American Foresters to discuss the topic: "How can game production be best coordinated with timber production; in what instances should the propagation of game be considered the major objective in the management of forests?" Mr. Gabrielson pointed out that the new forestry methods for producing timber on a sustained-yield basis are well adapted to game production also, the clearings made by selective cuttings offering habitat for wildlife. The old-time forester, said Mr. Gabrielson, cared only for the production of timber and through a forest without undergrowth "could march happily up to the Pearly Gates." The game extremist, he said, might want nothing but brush and small trees. "He could march through this kind of wilderness forever," said the new Chief, "and he wouldn't care if there wasn't a road or even a path. He wouldn't mind if the brambles scratched his hide. He wouldn't even give a hoot if he never got to the Pearly Gates at all, for he'd be completely happy right where he was." The new methods, he said, offered a fortunate middle ground. Mr. Darling reviewed his efforts as Chief of the Bureau and emphasized that his resignation did not mean the end of his service in the national movement for wildlife restoration. He had "enlisted for duration," he said. Other speakers were F. H. Silcox, Chief of the Forest Service, and Prof. H. H. Chapman, of the Yale School of Forestry.

Addresses D. C. Canadians.--Mr. Darling on November 16 was the guest speaker of the Canadian Club of Washington, D. C. He spoke on the theme "Between You and Us--We Can Have Ducks."

Talks to Land Grant College Delegates.--Mr. Gabrielson on November 19 discussed the "Relation of Agriculture and Game Management" at a meeting of the Land Grant College and University Association in Washington. The meeting, which was part of the association's annual convention, was also attended by Dr. W. B. Bell, F. C. Lincoln, Clarence Cottam, E. R. Kalmbach, C. S. Williams, Franklin H. May, and Leon Kelso. The Chief described the Bureau's plan for carrying on research and demonstrational work in cooperation with land grant colleges and State game commissions, and discussed the value of game management as a farm practice. Game management, he said, has real possibilities from an agricultural standpoint, but it should be considered principally as a method of supplementing the farmer's income and in most sections not as a major part of the agricultural operations.

Survey Work Described at Radio Meeting.--At the second annual meeting of the National Radio Conservation Council, held in Washington on November 20, and attended by Secretary Wallace and national representatives of many groups interested in wildlife conservation, Mr. Gabrielson and other members of the Bureau discussed the

various aspects of the Bureau's research and regulatory work. The speakers included Dr. W. B. Bell, Stanley P. Young, A. C. Elmer, Clarence Cottam, and Frank G. Ashbrook. Rudolph Dieffenbach, Frederick C. Lincoln, and Howard Zahniser also were present as Bureau representatives.

Frank E. Mullen, Director of Information for the Radio Corporation of America and chairman of the Council, presided at the meeting, which was called to formulate a radio series for 1936 in the regular Friday Conservation Day programs of the National Farm and Home Hour. The Council reviewed the progress made during 1935 in furthering the cause of conservation by radio and made plans for the 1936 series of programs in collaboration with William E. Drips, NBC Director of Agriculture. The National Radio Conservation Council was organized two years ago to encourage the public to practice conservation of the nation's natural resources and to bring together the various conservation groups in a united effort to stimulate public opinion in these matters. The Conservation Day programs, heard each Friday, have proved to be one of the most popular features of the Farm and Home Hour.

Greets Conservation Day Audience.--Introduced to the audience of the National Farm and Home Hour during the Conservation Day program on November 22, Mr. Gabrielson responded with a brief talk outlining the Bureau's program of wildlife conservation. "Everyone," he said, "tells me that I have taken the toughest job and am on the hottest spot in the Government Service. Maybe that is so. Certainly I'm surprised to find myself out in the open here today after all these warnings. By all logic I should be somewhere between here and the Pacific Ocean, ripping through the brush like a bear ahead of a pack of dogs. No one realizes better than I that it is a tough job to fill a place that Ding Darling has occupied. Everyone in the Biological Survey regretted his departure and we are all glad that he is still going to be an active worker in the conservation movement. We in the Bureau intend to carry on to the best of our ability and resources the conservation program that he has promoted so valiantly." Concluding his remarks, the Chief said: "The conservation and restoration of our wildlife population is a tremendous task. We have in the past wasted this valuable resource riotously, as we have many other resources with which this continent was endowed. Now we have an opportunity to mend our ways, but our only chance for even measurable success depends on the close cooperation of all conservation agencies. For the Biological Survey I earnestly request such cooperation in a constructive program of rebuilding the wildlife resources of this nation."

Radio Talk Scheduled.--Mr. Henderson will speak on the Conservation Day program of the National Farm and Home Hour on December 20 on "Holidays for the Waterfowl."

Inspects Mosquito-Control Operations.--From November 6 to 9, W. L. McAtee made an inspection of mosquito-control operations along the south shore of Long Island. He reports that ditching as ordinarily done in the tidal marshes there does not seem to carry with it any threat either to the vegetation or the wildlife of the salt marshes.

Survey Exceeds Community Chest Quota.--The headquarters unit of the Bureau was assigned a quota of \$1,659 for its part in this year's Washington (D. C.) Community Chest drive, which opened on November 11 and closed on November 20. Final returns to

the chest headquarters on November 20 from 196 employees totaled \$1,965.75, which was 118.12 percent of the assigned quota. This again places the Survey on the "Honor Roll", and the award by the "chest" of a diploma has been displayed in the "C" street corridor of the South Building, opposite the administration offices of the Bureau. Survey members who carried on the campaign among the Bureau personnel were: J. L. Talbert, committee chairman, and the following keymen: Miss Wilma Aho, Mrs. Jane S. Elliott, Miss E. N. Scruggs, and Miss V. S. Schantz.

Former Advisory Board Member Dies.--Clark McAdams, an authority on bird life and a former member of the Advisory Board, Migratory Bird Treaty Act, died of cancer at his home in St. Louis on November 29. Mr. McAdams was a contributing editor of the St. Louis Post-Dispatch. His column "Just a Minute" was a feature of the paper's editorial page for more than 20 years.

ADMINISTRATION

Memoranda to Field Offices Issued.--The following memoranda to field offices have been issued in the "Administrative Field Office" (Admin. F. O.) series:

- No. 56. Billing instructions on charges under bills of lading, transportation requests, and for telegrams. (November 4.)
- No. 57. Cooperation with State directors for the National Emergency Council. (November 7.)
- No. 57. Amendment No. 1. (November 21.)
- No. 58. New provisions of Federal criminal procedure. (November 7.)
- No. 59. Furnishing of information regarding marital status and relatives in Government service for persons recommended for appointment. (November 8.)
- No. 60. Amendment to the Administrative Regulations of the Department regarding appearance, fees, and expenses of Department employees as witnesses in judicial proceedings. (November 9.)
- No. 61. Lead-pencil signatures on vouchers. (November 12.)
- No. 62. Notice of termination of leases and agreements. (November 13.)
- No. 63. Field purchases of gasoline and lubricants while in travel status. (November 18.)
- No. 64. N. R. A. collecting data in study of Walsh Bill. (November 26.)
- No. 65. Mailing of official packages between December 15 and 24. (November 27.)

PUBLIC RELATIONS

Assistant Editor Appointed.--Mrs. Louise G. Prior, of Ohio, has been appointed, effective November 8, assistant editor in the Editorial and Information Section, by transfer from the Division of Loans and Currency, Department of the Treasury. Her first assignment is of a dual nature--handling the proofs of Mr. Bailey's North American Fauna No. 55, on "Mammals of Oregon" and the manuscript of Mr. Gabrielson's report for State publication on the "Birds of Oregon." Mrs. Prior comes to the Bureau well qualified for her new work, having been Editor of the Bureau of Fisheries from 1919 to 1923.

Mailing List Work Consolidated.--By the appointment of Miss Gardia M. Cottle, of Kentucky, as clerk-stenographer in the Editorial and Information Section, effective November 13, the mailing-list work of the Bureau will be handled centrally, under her care. Miss Cottle comes to the Bureau by transfer from the Treasury Department's Division of Loans and Currency.

Two New Movies Released.--Two motion picture films relating to the work of the Survey were presented to Department representatives on November 22, and have both been released. One, "Flyways of Migratory Waterfowl", a sound picture, shows the routes followed by waterfowl in their migrations. A lecture supplements the pictures, giving interesting data connected with this phase of bird life. The second film, entitled "Game Farming", and also a sound picture, emphasizes the need for sanitary measures in the prevention of diseases among young birds. This film fills a long-felt need in the general program of restoration of wildlife.

Yearbook Separates Available.--The eight articles written by members of the Bureau for the 1935 Yearbook of Agriculture have now been issued as Separates, numbering 1513 to 1520, inclusive. Copies of these may be obtained on request. The articles are listed on pages 108 and 109 of the July-September SURVEY.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Feed cost of producing young rabbits to weaning age, by Chas. E. Kellogg, biologist, Section of Fur Resources, Division of Wildlife Research. Mimeographed Leaflet BS-21, 3 pp. Oct. 1935. Received Nov. 6.
- Feed requirements in raising weaned rabbits to a weight of 6 pounds, by Chas. E. Kellogg, biologist, Section of Fur Resources, Division of Wildlife Research. Mimeographed Leaflet BS-22, 4 pp. Oct. 1935. Received Nov. 20.
- Abstract of fur laws, 1935-36, compiled by F. G. Grimes, administrative assistant, Division of Public Relations. Mimeographed Leaflet BS-23, 29 pp. Nov. 1935. Received Nov. 12.
- Bounties paid by States, compiled by F. G. Grimes, administrative assistant, Division of Public Relations. Mimeographed Leaflet BS-24, 4 pp. Nov. 1935. Received Nov. 15.

Press and Radio Information items, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

"Ding" Darling to leave Federal post and return to cartooning. Press statement 864-36. Released November 11.

New Chief of Biological Survey has 20-year record of advancement. Press statement 887-36. Released November 14.

Wildlife organizations fill 16-page directory. Press statement 931-36. Released November 19.

Lanterns guard turkeys against western coyote. Clip sheet No. 909. Released December 1.

Federal "Duck Stamp." Radio release 4689. Farm Flashes, October 19.

Wild Life Protection. Radio release 4722. Farm Flashes, October 30.

Game Laws. Radio release 4821. Farm Flashes, November 8.

Raising Rabbits. Radio release 4940. Farm Flashes, December 16.

Bill Beaver, Master Engineer. Radio talk by Leo K. Couch, Seattle, Wash. November 4.

Land Planning in Relation to Big Game Management. Radio talk by W. M. Rush, Regional Director, Pacific Region, during the Western Farm and Home Hour, November 14.

Greetings to Wildlife Conservationists. Radio talk by Ira N. Gabrielson, Chief, Conservation Day program of the National Farm and Home Hour, November 22.

The Duck Situation. A radio discussion among I. N. Gabrielson, Chief, F. C. Lincoln, Division of Wildlife Research, J. R. Fleming, Assistant Director of Information, Morse Salisbury, and others, broadcast in the Department of Agriculture period, National Farm and Home Hour, November 25.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Aldous, C. M. The last of the caribou. *Conserv.* 1 (3): 2. Oct. 1935. (Condensed from Nat'l. Waltonian.)

Ashbrook, F. G. Fur resources--the stepchild of conservation. *Conserv.* 1 (2): 6. Aug. 1935. (Condensed from Fur Trade Rev.)

Cottam, Clarence. Food preferences and requirements of the white-tailed deer in New York State, by L. A. Maynard, Gardiner Bump, Robert Darrow, and J. C. Woodward. *Bull.* 1, Joint contribution of the New York State Conservation Department and New York State College of Agriculture. 35 pp., illus., Jan. 1935. (Review.) *Jour. Mammal.* 16: 330-331, Nov. 1935.

Darling, J. N. Desert makers. *Conserv.* 1 (3): 5. Oct. 1935. (Condensed from Country Gentleman.)

----- The wild duck racket. *Today* 5 (2): 15, illus. Nov. 2, 1935.

Gilchrist, D. A. Fair deal to birds and sportsmen. *Ariz. Wild Life* 6 (10): 2. Oct. 1935.

Goldman, E. A. Two new pocket gophers of the genus Thomomys. *Biol. Soc. Wash. Proc.* 48: 149-152. Oct. 31, 1935.

----- New American mustelids of the genera Martes, Gulo, and Lutra. *Biol. Soc. Wash. Proc.* 48: 175-186. Nov. 15, 1935.

----- Pocket gophers of the Thomomys bottae group in the United States. *Biol. Soc. Wash. Proc.* 48: 153-158. Oct. 31, 1935.

- Lincoln, F. C. Raise ducks! Field and Stream 40 (6): 34-35, 63-65, illus. Oct. 1935.
- Sheldon, H. P. Guns and game: Sorrows of the wild-fowler; the fowling piece; Camp Perry notes; high-velocity rifles. Sportsman 18 (5): 56-58. Nov. 1935.
- Taylor, W. P. Ecology and life history of the porcupine (Erethizon epixanthum) as related to the forests of Arizona. Univ. of Ariz. Bull. 6 (5): 177 pp., illus. (Biol. Sci. Bull. 3). July 1, 1935.
- Zahniser, Howard. In December. Nature Mag. 26 (6): 327. Dec. 1935.

WILDLIFE RESEARCH

To Broadcast Christmas Eve.--Dr. Bell on December 24 will take part in a broadcast on "Christmas Trees and Reindeer" sponsored by Science Service and scheduled for 4:30, eastern standard time, over a coast-to-coast network of the Columbia Broadcasting System.

Maine Cooperative Research Unit Established.--A cooperative agreement has been completed with the University of Maine and the Maine Department of Inland Fisheries and Game for the establishment of a game-management research and demonstration project at that University. Clarence M. Aldous, who has been in charge of the research on forest wildlife relations in the Lake States district for the past several years, will be the leader of this project.

Leaders of the eight projects so far established are as follows: Charles O. Handley, Virginia Polytechnic Institute, Blacksburg, Va.; A. S. Einarsen, Oregon State Agricultural College, Corvallis, Oreg.; Dr. D. I. Rasmussen, Utah State Agricultural College, Logan, Utah; Harold S. Peters, Alabama Polytechnic Institute, Auburn, Ala.; Dr. Paul D. Dalke, Connecticut State College, Storrs, Conn.; Dr. Walter P. Taylor, Texas A. & M. College, College Station, Tex.; C. M. Aldous, University of Maine, Orono, Maine; and Logan J. Bennett, Iowa State College, Ames, Iowa. Mr. Bennett's termination of service at the Trempeleau Migratory Waterfowl Refuge, Mich., to accept the position in Iowa was incorrectly referred to on page 152 of the October SURVEY as leaving the Bureau.

Make Survey on the Wichita.--Vernon Bailey, collaborator, is cooperating with O. J. Murie and H. Harrison Hoyt on a program of live-trapping and tagging an extended series of predatory and fur animals on the Wichita Mountains Wildlife Refuge. This is being done in an effort to trace the individual movements and other activities of the animals as a part of an intensive study of wildlife on this refuge, including interrelationships of game birds, predators, rodents, and other mammals. Mr. Murie and Mr. Hoyt have been studying for some time the abundance and distribution of various species of wildlife, mapping their ranges, and observing food and cover available for them. They have also been studying the distribution of the present water supply. This information is being obtained as a basis for management plans, for more intensive research in the life history, habits, and relationships of the wildlife population of the refuge, and for planting of food and cover plants.

Surveys Proposed Refuge Sites in Southwest.--Dr. Walter P. Taylor in collaboration with representatives of the National Park Service has recently completed a study of proposed refuge areas in New Mexico and Arizona. The areas studied include the Playas areas in Hidalgo County, in New Mexico; and the Ajo-Cabeza Prieta area in Pima and Yuma Counties, the King of Arizona area in Yuma and Maricopa Counties, and the House Rock Valley area in northern Coconino County, in Arizona. Dr. Taylor has submitted recommendations as to the areas that should be included in the refuges, the animals to which adapted, and the conditions under which the areas should be administered.

Address Fish and Game Conference.--Mr. Darling, Dr. Bell, F. C. Lincoln, and Logan J. Bennett, representing the Survey, were among the speakers at the first North Central States Fish and Game Conference, held in Urbana, Ill., December 5 to 7. Mr. Darling, substituting for J. C. Salyer, spoke on the subject "Federal Projects for the Restoration of Breeding and Nesting Areas in the North Central States" and in another address discussed wildlife conservation in this country. Dr. Bell substituted for Mr. Gabrielson, who was not able to be present, by speaking on the program of the Survey in the North Central States. Mr. Lincoln presented a paper on waterfowl populations, and Mr. Bennett discussed his extensive studies of upland game in Iowa. Called by T. H. Frison, chief of the Illinois State Natural History Survey, the conference was planned for the working out of a program of research that would lay the foundation for a comprehensive program of wildlife restoration and management for this important region. The conference considered migratory waterfowl, upland game birds, fur bearers, and other mammals. It included representatives of the Middle Western States also. Survey members in attendance in addition to those speaking included I. T. Bode, George Tonkin, Daniel Janzen, John E. Perry, and Ray C. Steele.

Makes Survey of Mosquito Control Work in Delaware.--Dr. Warren S. Bourn has enlisted the cooperation of representatives of the Coast and Geodetic Survey in developing his study of the effects of drainage for mosquito control on wildlife and food and cover plants required for waterfowl, muskrats, and other valuable species. Working in cooperation with W. S. Corkran, of the Mosquito Control Commission, Lewes, Del., Dr. Bourn has recently made several trips to Delaware, where a number of large drainage projects are under way.

Talks to Garden Club Delegates.--Dr. Harry C. Oberholser on November 5 lectured on birds and their conservation before a Baltimore meeting of delegates from the Federated Garden Clubs of Maryland who are studying ways and means to further bird conservation.

Transplanted Musk Oxen Doing Well.--A report from an agent of the Northwestern Livestock Corporation on Nunivak Island indicates that the four musk oxen recently released on the island are doing well. The report was written on October 27.

Mammal Research

Studying Red Squirrels.--A. H. Howell has begun a technical revision of the taxonomy of the red, or pine, squirrels of North America. In addition to the collections in the National Museum, he has borrowed important series from other museums, thus facilitating the work of determining the ranges of the various forms.

Confer at Mammal Laboratories.--Among recent visitors to the mammal laboratories were F. Carrington Weems, of New York City, Bureau cooperator, who has procured several important specimens of mammals for the Bureau; Prof. George P. Burns, of the University of Vermont; and W. W. Eggleston, formerly with the Bureau of Plant Industry.

Help Form Wildlife Program for TVA.--Dr. H. H. T. Jackson and A. L. Nelson spent the period from November 14 to 23 studying wildlife conditions on the Norris forest area of the Tennessee Valley Authority. The area, which covers approximately 130,000 acres, lies northeast of the huge Norris dam and borders the land to be covered by Norris Lake. Eleven wildlife refuge sites, covering in all about 25,000 acres, have been selected. Dr. Jackson and Mr. Nelson in a conference held at Knoxville on November 22 and 23 with TVA officials made recommendations regarding wildlife management practices suitable to the areas selected.

Food Habits Research

Examines Waterfowl Areas in Wisconsin.--From November 5 to 18 Neil Hotchkiss was in Wisconsin examining areas suitable for waterfowl refuges. He paid special attention to the lakes of the Fox River Valley. Waterfowl, he says, were reported as being more abundant there than for several years.

Reports on Crow-Control Studies.--S. E. Aldous, engaged in experimental crow control in Oklahoma, has reported that up to November 8 the roosts of that area had not reached their maximum size. Grain sorghum crops were unusually late in maturing, with the result that the ample food supply available for the birds hampered control experiments.

Coyote Study Practically Complete.--The program of coyote-stomach examination, which has constituted the major activity of the Denver laboratory for the past three years, has been practically completed, and the Section of Predator and Rodent Control has issued instructions to the field force to discontinue the saving of coyote stomachs. Stomachs of other predators, however, will still be saved and transmitted to the Denver laboratory. C. C. Sperry is now engaged in tabulating the information on more than 8,000 well-filled coyote stomachs preparatory to reporting on the study.

In Washington.--Early in November E. R. Kalmbach conferred with Mr. Aldous in connection with the experiments in crow control in Oklahoma and then proceeded to Washington, D. C., where he is dealing with the problem of relief from the perennial starling nuisance.

Inspects Mosquito-Control Work in Virginia and North Carolina.--Clarence Cottam left Washington on November 5 to inspect a proposed mosquito-control project in eastern Virginia, from Sigma north to Virginia Beach. Suggestions were outlined for preventing undue injury to wild fowl in this area. On November 9 and 10 Mr. Cottam inspected conditions on Roanoke Island, N. C., where mosquito-control work has been in progress. Control activities in this area are limited primarily to an extensive but practically worthless needle-grass (Juncus roemerianus) marsh. Mr. Cottam directed his efforts here toward outlining experiments that may be a means of converting this marsh into a productive waterfowl area. The North Carolina Emergency Conservation Work organization has allocated funds for these experiments.

Finds Improved Conditions at Currituck Sound.--On November 7, Mr. Cottam made an inspection of food conditions and waterfowl abundance in Currituck Sound. It was encouraging, he reports, to find that duck-food plants had shown marked improvement since the locks at Great Bridge, Va., had been closed, preventing saline and polluted water from entering the sound. In the area south of the Narrows, local citizens reported the best growth of submerged duck food in five years. Waterfowl are perhaps more abundant in this area than for several years, Mr. Cottam reports.

South Carolina Areas Inspected.--Mr. Cottam inspected proposed waterfowl areas in South Carolina and also visited Bulls Island to make further observations on waterfowl food conditions. He returned to Washington on November 15.

Works in the Northwest.--During the first week of October T. H. Scheffer made a trip across the Cascade Mountains in Washington to look over terrain to which it was proposed to transfer beavers. The proposed stocking, near a CCC camp, was planned as a source for introducing the animals in branches of Mission Creek. Mr. Scheffer acted in an advisory capacity to WPA officials. In the following week he continued with the waterfowl-food resources program, which consisted primarily in harvesting seed of wild celery (*Vallisneria*) in lakes where the species had been introduced a number of years ago and in seeding it in other lakes. Growth and development will be under observation next season. Later in October Mr. Scheffer gave some attention to a study of ground-feeding birds that might make use of the seeds of Scotch broom, which has spread over large areas of prairie and cut-over lands in western Washington. The shelter this growth provides for birds and small mammals, he reports, is excellent, but so far he has not been able to learn of any birds that feed upon the seeds.

Visits Washington Laboratory.--On November 7 Ross O. Stevens, of the Soil Conservation Service, High Point, N. C., visited and conferred with staff members. Mr. Stevens, a former member of the Food Habits Research Section, is now doing wildlife-development work in connection with the Deep Creek soil-erosion control project in North Carolina.

Distribution and Migration of Birds

Make Survey of Chesapeake Bay Region.--On November 8, to inspect waterfowl conditions in Chesapeake Bay, Mr. Lincoln left Washington as the guest of Joseph B. Weaver, Director of the Bureau of Navigation and Steamboat Inspection, Department of Commerce, accompanied by Commander H. McCoy Jones of that Bureau, and spent November 9 and 10 with them on the Bureau Flagship, the yacht "All Alone." By means of speed boats carried by the yacht it was possible to investigate every important tributary stream from Havre de Grace south to Pocomoke Sound. On the Susquehanna flats it was estimated that about 300,000 ducks were present, about 200,000 of which were canvasbacks. Few redheads were seen in this area, but a raft of about 4,000 was noted on Gunpowder River. In the lower bay few desirable game ducks of any species were seen, and while the season was still young the numbers of Canada geese did not seem to come up to those of former years. Whistling swans were abundant at several points.

Addresses Lions Club.—On Wednesday, November 13, Mr. Lincoln addressed the Lions Club of Washington, D. C., in the Italian Garden of the Mayflower Hotel. His talk was illustrated by the new motion picture entitled "Flyways of Migratory Waterfowl."

Plan Publication of Report on Banding Station.—On November 23 and 24 Mr. Lincoln was in Philadelphia consulting with Mrs. Marie A. Myers regarding the publication of her report on the Tanager Hill banding station at Crystal Bay, Minn., which operated from 1923 to 1930. Mrs. Myers has prepared an elaborate and delightfully written report of the activities of this station, which it is hoped may be published in book form. It seems that a work of this kind should be a valuable incentive toward the establishment of stations by owners of extensive suburban estates.

Observes Waterfowl in California.—Luther J. Goldman, engaged in checking waterfowl areas in California, reports water conditions better than for several years. After weighing all facts he has been able to gather concerning the status of waterfowl, Mr. Goldman believes that the net result indicates some increase. He calls attention, however, to the fact that birds that normally stay farther north are concentrated in the interior valleys of California because Tule and Klamath Lakes froze up early in November this year, whereas this does not usually take place until the latter part of the month.

Banded-Duck Returns Numerous.—Returns from banded ducks are being received on an average of about 50 a day.

Interesting Returns Received.—A brown thrasher banded April 28, 1930, at Lansing, Mich., returned to the same locality on May 21, 1931; June 13, 1932; April 18, 1933; August 2, 1934; and April 28, 1935. A crow banded October 10, 1935, at Portage la Prairie, Manitoba, was shot October 25, 1935, at Minto, N. Dak. A burrowing owl banded June 21, 1933, at Northville, S. Dak., was killed April 3, 1935, at Snyder, Tex. A green-winged teal banded August 4, 1935, at Alitak, Kodiak Island, Alaska, was shot November 8, 1935, at Pritchard, British Columbia. A junco banded October 21, 1926, at Olivera, N. Y., was retrapped at the same locality on July 28, 1935. A blue goose banded in the fall of 1933 at Avery Island, La., was killed by an Indian at the mouth of the Lawashee River, Ontario, in May, 1935. A chimney swift banded September 23, 1928, at Clayton, Ill., was captured August 2, 1935, at Toledo, Iowa. A chimney swift banded May 11, 1935, at Beloit, Wis., was caught 15 days later, May 26, 1935, at Drayden, Md. A green-winged teal banded May 1, 1934, at Lakin, Kans., was killed about November 13, 1935, at Apam, between Pachuca and Mexico City, Mexico. A pintail, banded March 9, 1933, at Ellinwood, Kans., was killed October 21, 1935, near Carmen, Campeche, Mexico. A common tern banded July 16, 1935, at Charity Island, Arenac County, Mich., was found exhausted at Puerto Padre Bay, Cuba, October 25, 1935. A Caspian tern banded July 2, 1935, at Shoe Island, Lake, Mich., was found dead November 5, 1935, at Nipe Bay, Oriente, Cuba. A brown pelican banded November 12, 1934, at Pelican Island, Mosquito Lagoon, Fla., was found wounded October 29, 1935, at Preston, Oriente, Cuba. A white pelican banded July 26, 1934, at Chase Lake, N. Dak., was killed about October 25, 1935, at La Barca, Jalisco, Mexico.

Fur Resources

Addresses National Rabbit Convention and Show.--At the National Rabbit Convention and show held in New Haven, Conn., Chas. E. Kellogg on December 9 presented the results of recent experimental work on rabbit skins produced at the U. S. Rabbit Experiment Station, Fontana, Calif. After visiting fur animal breeders in the vicinity of Boston he then planned to give a talk on December 11 to a meeting of rabbit breeders in northeastern Massachusetts, and on December 13 and 14 to visit the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., to discuss the progress of the work and outline experiments for the ensuing year. En route back to Washington he expects to stop at Cornell University and Pennsylvania State College to discuss the possibility of including rabbit projects in the 4-H club work at these schools.

Studies Temperature Data.--Geo. S. Templeton, director of the Rabbit Experiment Station, spent a considerable part of October reviewing all the station's data bearing on the influence of temperature on the mating and kindling of does. There were 2,556 individual matings studied. In general he found the highest reproductive efficiency in February and March and the lowest in September, October, and November, the months during which the rabbits regularly molt.

Attends Meetings.--On October 9 Mr. Templeton attended the monthly meeting of the Southeast Rabbit Club, at Compton, Calif., to discuss some experimental feeding work at the station. On October 16 he visited rabbit breeders in the vicinity of Temple City and Arcadia, Calif.

Marten Experiment Started.--The Fur Animal Experiment Station on November 1 started a feeding experiment with martens with a ration composed of 75 percent raw meat, the rest consisting of breadmeal, oatmeal, egg-yolk powder, milk powder, tomatoes, and green bone. It is hoped to find a ration that will be conducive to regular breeding of the animals.

Numerous Visitors at Station.--Approximately 75 persons visited the Fur Animal Experiment Station during October, reports Chas. F. Bassett, director of the station. Most of these were prospective mink and fox raisers seeking information on the possibilities of establishing themselves in this industry. Many were interested to the extent that they spent several days in getting detailed information.

Station Grounds Being Beautified.--Mr. Bassett during October had 100 additional Norway spruces planted on the grounds of the station. These not only add beauty to the station but also serve as windbreaks for the fur animals.

Addresses Meetings.--At the request of the president of the New England Mink and Fur Breeders Association, Boston, Mass., Mr. Bassett on November 20 spoke at the annual meeting of the association in Boston on "Dehydrated Beefmeal and its Place in the Fox Ration." On November 22 Mr. Bassett was the guest speaker of the New York State Conservation Council at a meeting in Albany. His subject was "Are the Martens to Follow the Buffalo and the Passenger Pigeons?" The Council passed a resolution favoring a close season on marten and fisher in New York.

Norwegian Visits Section.---Prof. Per Tuff, professor of animal husbandry at the Veterinary College of Norway, Oslo, visited, the Fur Resources Section on October 28 to discuss fur-farming development in Norway and in the United States. Professor Tuff was given copies of Bureau publications, and he agreed to make contacts for the Survey with fur-farming magazines, fur-breeders associations, and others in Norway from whom information could be obtained regarding fur-farming there.

Studying Muskrats.---Paul L. Errington, of the Iowa State College, Ames, Iowa, visited the Fur Resources Section on October 28 in connection with his studies of the breeding and gestation periods of muskrats.

Disease Control

Gives Lectures.---Dr. J. E. Shillinger attended the live fur-animal show and addressed the meeting of the American National Fox and Fur Producers Association at Wapakoneta, Ohio, at a night session on November 18. About 150 members, he reports, were in attendance from various States from Iowa and Minnesota to the Atlantic Coast. Motion pictures showing activities of the Bureau were presented. On November 22 Dr. Shillinger addressed a meeting of the Outdoor Ohio Council, in Columbus, on the relationship of diseases and parasites to wildlife. This organization, Dr. Shillinger says, is especially interested in the wildlife resources of the State, and many questions were brought up with reference to the Biological Survey's plans on game research and management for the improvement of conditions for valuable species.

MIGRATORY WATERFOWL

Inspects Refuges.---Mr. Salyer returned to Washington on November 22 after being two months in the field inspecting Bureau refuges. By dint of almost "clock around" traveling, he was able to make contact with all the field men of the Division and form plans and outlines of work to be done during the months of inclement weather and during the spring. Mr. Salyer expressed satisfaction with the manner in which the development activities have been conducted. He also made first hand inspection of many of the proposed refuge areas that have been recommended as being especially desirable, and selected for inclusion in the purchase program those that will fit best into the national restoration plan.

Reports Refuge Developments Progressing Rapidly.---Upon returning recently from the field, Mr. Emery reported excellent progress being made, both in providing desirable CCC camp activities and in accomplishing the construction program for headquarters and laboratory buildings. Thousands of pounds of duck-food seeds and tubers, he found, have been collected and stored in specially constructed cellars for spring planting. Headquarters buildings at Sand Lake, Waubay, Arrow-wood, Upper and Lower Souris, Des Lacs, Lostwood, Squaw Creek, Lake Isom, Cape Romain, Savannah River, and Medicine Lake Migratory Waterfowl Refuges have already been completed, inspected, and accepted by the Bureau. The rate of progress on the remaining structures indicates, he reports, that all will be completed within a very short time.

Complete Water Control Works at Squaw Creek.--Water-impoundment work has been completed at the Squaw Creek Migratory Waterfowl Refuge, one of a dozen refuges on which the Bureau of Agricultural Engineering has been supervising the construction of various types of water impoundment devices. This refuge, in Holt County, north-western Missouri, comprises about 4 square miles and is enclosed with about 7 miles of earth dikes, which have been constructed at a height of 4 to 12 feet, depending on conditions. The pool or lake is fed by Squaw Creek, the water from which first flows into a small pool where the silt is deposited. In the deeper part of the shallow sanctuary area small islands have been thrown up, and these will be planted to cover and food plants. These islands are considered particularly valuable as affording ideal nesting places for the birds. The refuge is on one of the main flyways for the migrants from Canada to the Gulf States and is close to Mound City, Mo., and U. S. Highways 59 and 275. It replaces a former drainage project that had failed.

The engineers expect to complete water-control work on 4 more of the 12 refuges before the first of the year. Two are in North Dakota--the Des Lacs and the Arrow-wood Migratory Waterfowl Refuges. The third is the Medicine Lake Migratory Waterfowl Refuge, Mont.; and the fourth, the Sand Lake Migratory Waterfowl Refuge, on the James River, in South Dakota.

CCC Workers Improving Wichita Area.--Two CCC camps, under the supervision of the Section of Restoration and Development, in cooperation with the Game Management Division, are carrying on development work at the Wichita Mountains Wildlife Refuge, Okla. The program includes construction of a modern wildlife laboratory, and two cottages for scientific workers of the Bureau to be stationed on the area for field studies; fencing of the area; improvement of water-supply conditions for buffalo, elk, deer, and other wildlife frequenting the area; and the development of a public recreational area. In connection with the recreational area, the camp enrollees are providing a large parking area, a bath house, toilets, picnic grounds, and fine stretches of sand beach. Mr. Emery reports that the lakes are now filling rapidly and work is being expedited to complete the construction of fish shelters before the high waters of spring.

LAND ACQUISITION

Addition to Upper Mississippi Refuge.--The President, on October 24, signed an Executive order adding 3,832 acres in Minnesota and Wisconsin to the Upper Mississippi Wildlife and Fish Refuge. These lands, acquired by the War Department in connection with navigation improvements along the river, lie along the new shoreline established by the impounded waters and constitute a highly desirable addition to the existing sanctuary.

Emergency Projects Approved by the President.--As a first and highly important step towards the establishment of a sanctuary at the southern end of the Mississippi flyway, the President, on November 19, signed an Executive order for the establishment of the Delta Migratory Waterfowl Refuge, La. This first unit will provide protection for the waterfowl on approximately 8,000 acres in the lower delta region of the Mississippi, not far from the Gulf of Mexico. The next step, now well under way, will be the purchase of 28,861 acres of marshland adjoining

the new refuge, which was for many years the shooting ground of the Delta Duck Club. An old quarantine station, with an area of 900 acres, fronting on the river, it is hoped will be added by Executive order in the near future, through cooperation of the Department of the Treasury which now has jurisdiction over the area. The total acreage will then be approximately 37,760.

Other new refuges being acquired through emergency funds and on which executive approval has been obtained recently are: Rice Lake Migratory Waterfowl Refuge, Minn., 7,790 acres, on October 31, and Muleshoe Migratory Waterfowl Refuge, Tex., 3,654 acres, on October 24. An addition of 10,108 acres was made to the existing St. Marks Migratory Bird Refuge by Executive order on November 1.

GAME MANAGEMENT

Federal and Maryland Agencies Cooperate in Effective Enforcement.--Waterfowl hunting in the Chesapeake Bay section of Maryland has never been more effectively under control than during the present season, reports James Silver, regional director. Through a cooperative arrangement with the Maryland Game Commission and the U. S. Bureau of Navigation, 13 boats are engaged in the enforcement of the waterfowl regulations in this section. For the first time in history there is no hunting, legal or illegal, on the Susquehanna flats, and several hundred thousands of ducks, geese, and swans are enjoying unmolested the best food conditions that have prevailed on the flats for many years. Hunters are confined to shooting within 100 feet of the shoreline, and get some few birds, but the bag limits do not compare with the numbers obtained on the flats in previous years.

The Maryland boats, Canvasback and Redhead, a small skiff in charge of U. S. Deputy Game Management Agent E. R. Atkinson, and the Bureau of Navigation's 138-foot boat All Alone, with speed boat tender, in charge of Captain John D. Lonsdale, all stationed at Havre de Grace, are rendering most valuable cooperation in enforcement of the game laws. A second Bureau of Navigation boat, the Siwash, in charge of Captain Henry E. Sweet, is stationed at Queenstown, on the east side of the bay, for cooperative service in that section.

Game Management Agent Orin D. Steele is coordinating this work, and in addition he has in active operation a little farther south, the Bureau's 46-foot motor boat Loon and the 28-foot Willet, and on the ocean side a chartered motor boat tended by a Bureau outboard motor boat. All these latter boats are manned by deputy game wardens, whose salaries are paid jointly by the Biological Survey and the Maryland Game Commission.

Inspects Work in Four Regions.--Chester A. Leichhardt returned to Washington on November 25 from a 5-weeks' trip in parts of Regions 3, 4, 5, and 6. He conferred with U. S. attorneys, State game officials, sportsmen, and Regional Directors Janzen and Tonkin, and did field-patrol with Mr. Janzen and with 14 game agents and deputy agents. Mallard ducks, he reports, were numerous in the Illinois River bottoms, Canada geese in the Horseshoe Lake area near Cairo, Ill., and pintails in the rice fields of Texas. Waterfowl were scarce on Reelfoot Lake, Tenn., along the Mississippi River, in the southern Louisiana marshes, and in many other favorable areas, although blue geese were beginning to concentrate at the mouth of the Mississippi. Hunters, although reduced in numbers, Mr. Leichhardt found generally satisfied with this year's regulations, and these, he says, are being well observed.

In checking nearly 300 hunters, he found only one without the required duck stamp, and none had guns capable of holding more than 3 shells at one loading. Very few shots were heard before 7 a.m. or after 4 p.m., but several men were apprehended for hunting waterfowl over baited areas. The objective of the current regulations, he finds, is being realized, as the kill of ducks and geese this year has been reduced below that of the last few years.

Broadcasts on Big Game.--Regional Director, W. M. Rush, of the Pacific Region, on November 14, delivered a radio talk on "Land Planning in Relation to Big Game Management." One of a land-use series, the talk was broadcast during the Western Farm and Home Hour by 10 stations of the western division of the National Broadcasting Company.

Game Preserve Administration

Beavers at Sullys Hill.--The beavers recently transferred to Sullys Hill Game Preserve, N. Dak., from Niobrara Game Preserve, Nebr., are reported as doing well. They have been observed cutting brush on the shore of the small lake where their house is located. They have plenty of feed, several bushels of vegetables having been put into their house through a hole in the roof and a supply of carrots having been obtained for feeding them during the winter. The house is frost-proof and the animals have two runways into the lake.

Elk at the Refuge in Wyoming.--Thousands of elk migrated in November from the Teton State Game Preserve, Wyo., but the large number of hunters in the field kept them back in the mountains. According to reports early in December, however, the elk on the refuge are daily increasing in numbers, and constant patrol of the area is being maintained. By November 30, when the hunting season ended, approximately 3,600 elk had been obtained by hunters and checked through the several checking stations established by the State Game Commission.

Ex-Champ Calls at Elk Refuge.--Gene Tunney, former heavyweight champion, with his party, called at the Elk Refuge headquarters on November 24 to inquire about elk-hunting regulations. The party was attracted by elk congregated at the refuge, where hunting is not permitted.

Inspect Proposed International Parks.--From October 17 to 29, Daniel F. Galicia, assistant chief of the Forest, Game, and Fish Department of Mexico, accompanied Regional Director Don A. Gilchrist, U. S. Game Management Agent Charles E. Gillham, Dr. Walter P. Taylor, of the Division of Wildlife Research, and mammal and plant scientists of the National Park Service, on an inspection trip of several proposed international parks and international game refuges along the Mexican border from Texas to Yuma, Ariz. The party visited the famous Hatchet Mountain area south of Deming, N. Mex., which is inhabited by a herd of approximately 250 mountain sheep, and also inspected the mountain sheep ranges south and west of Ajo, Ariz., extending south to the Gulf of California. They then visited the proposed King refuge, north and east of Yuma, where the only native palms in Arizona are to be found, and the many ranges in southeastern Arizona, which were all found to be inhabited by mountain sheep. They also visited the proposed House Rock Buffalo refuge,

north of the Grand Canyon and adjacent to the Kaibab National Forest and the Grand Canyon National Park, where the only herd of buffalo in the wild in the United States exists. This herd now numbers 136.

Law Enforcement

Meets with Sportsmen.--During the western inspection tour, from which he returned on November 8, F. P. Callaghan in addition to conferring with field personnel, as related in the October issue of THE SURVEY, spoke at a meeting of sportsmen in Houston, Tex., on October 21, and at a meeting of the Protective Game and Fish Association of Nevada in Reno, on October 29. He explained various phases of the Survey's work and the Federal hunting regulations. Mr. Callaghan was also a guest at a Rotary Club luncheon in Phoenix, Ariz., on October 24.

In the Field.--On November 19 Guy W. Lane left Washington for Havre de Grace, Md., with Regional Director Silver, to observe conditions at the opening of the migratory waterfowl season on the Susquehanna flats on November 20. A large number of ducks, geese, and swans were observed, but the birds remained in open water, making the opening day a rather quiet one. Canvasbacks, mallards, scaups, and pintails were numerous. On November 21, in a wheat field on the Carpenter farm near Cecilton, Md., the men observed approximately 3,000 Canada geese feeding. These geese return to the Susquehanna flats to spend the night, but each morning they come early for the feed placed at night for them by the manager of the farm. Nobody is allowed to disturb the geese during the day. In the vicinity of Rock Hall, Md., on the Eastern Shore of Chesapeake Bay, and on Chester River, large numbers of ducks and swans were seen. Many flights of the snowy white swans in groups of 8 to 12 were observed, presenting a beautiful sight.

Amended Lacey Act Violated.--The first two cases under the recently amended Lacey Act, recently filed in West Virginia, involve illegal transportation of a live deer from North Carolina. Bond was furnished by the hunters for appearance in Federal court, and the live animal was taken to the game farm of the West Virginia Conservation Commission.

Enforcement Men Active.--The large volume of Migratory Bird Treaty Act case-reports reaching the Survey indicates that the agents and flying squadrons have been active. Many cases have also been terminated with sentences for the convicted violators. Outstanding among these are the following:

An agent and deputies operating near Lockport, La., apprehended three hunters at Sweet Lake on November 14 with 64 ducks, and one hunter on November 14 with 68 coots. These preseason shooters were arrested and arraigned before U. S. commissioners, three furnishing bond of \$500 each, and the other in default of \$1,000 bond being committed to jail.

Four persons were taken into custody on Mattamuskeet Migratory Waterfowl Refuge, North Carolina, on November 28 for killing swans. On being arraigned before a United States commissioner they gave bond to insure their presence in Federal court at the next term.

A tavern operator of Butte des Morts, Wis., was arraigned in Federal court at Milwaukee on November 16 charged with selling five wild ducks. He demanded a jury trial, was adjudged guilty, and fined \$20.

At Kansas City, Mo., on November 14, 3 persons charged with hunting ducks in close season were sentenced to serve 6 months each in jail. Sentence in each case was suspended and the defendants placed on probation for three years.

A State game warden operating with an agent in California, also on November 14 found a person in possession of 35 dressed ducks, 1 loin of venison, and 8 venison stocks. This offender was prosecuted in State court and required to pay a fine of \$250.

Also on November 14 a jury in Federal court at Savannah, Ga., returned a verdict of guilty against a defendant charged with shooting doves over a baited field. The court imposed a fine of \$100.

Two residents of Chesconnessex, Va., apprehended with 28 trapped ducks on November 7 in Accomac County by State Game Wardens Bunting, Doughty, and Tyler, have been arraigned before a U. S. commissioner and required to furnish bond for appearance in Federal court.

Another resident of Chesconnessex, Va., in possession of 42 wild-trapped and picked ducks, was apprehended on November 6 in Northampton County by State Game Warden Norman J. Tyler, though the offender made an unsuccessful attempt to escape.

On November 3 two hunters were apprehended in a rice field in Butte County, Calif., in possession of 18 mallards, 71 wigeons, and 62 sprigs pintails). These ducks, it was said, had been killed on request of the owner of the rice field, on the ground that the birds were doing damage. The hunters and the landowner were arrested and requested to furnish bond for appearance in Federal court at an early date.

Working in cooperation with State Wardens Kennedy and King, of Cody, Wyo., Agent Kenneth F. Roahen obtained evidence relating to the killing and crippling of approximately 145 coots on a lake near Cody on November 1. Investigation disclosed that the birds had been shot or crippled by three men. Apprehended and arraigned in State court the hunters were fined \$50 each, together with costs.

On October 23 in Federal court at Houston, Tex., two defendants charged with the illegal possession and sale of ducks entered pleas of guilty. One was fined \$50 and the other \$100, with an additional fine of \$250 suspended for 5 years on good behavior and on the condition that the defendant refrain from hunting for one year.

Three charged with hunting and killing swans entered pleas of guilty in Federal court at Wheeling, W. Va., also on October 23. A fine of \$20 was imposed in one case and \$10 each in the others.

Importations

Inspector Dies.--Harry Schelwald Swarth, senior inspector of foreign birds and mammals at San Francisco, died suddenly at Berkeley, Calif., on October 22. He was a member of the staff of the California Academy of Sciences, and in 1923 he accepted an appointment as importation inspector in addition to his regular duties at the Academy, serving the Bureau in this capacity until his death. Having had many years of experience in museum work, Mr. Swarth was an expert in the identification of foreign species of birds and mammals, and his passing is a severe loss to the Bureau and to ornithology in general. He was affiliated with several scientific and ornithological societies and was a Fellow of the American Ornithologists' Union.

Czechoslovakian Partridges Again Imported.--A permit was issued on November 13 for the importation of 216 Hungarian partridges from Czechoslovakia, the first shipment from that country for several years, although previously this was the principal source of the North American supply of these birds.

Vampire Bats Brought In.--Twenty vampire bats (Desmodus rotundus murinus) were recently imported from Port Lima, Costa Rica, and 4 giant vampire bats (Vampyrus spectrum) from Trinidad, British West Indies. Recent interesting importations also include a tree kangaroo (Dedrolagus ursinus), which was imported via Singapore, Straits Settlements.

Predator and Rodent Control

Texas Appropriation Made.--The Texas legislature in the first called session recently restored an annual item of \$15,000 for predator control that had been deleted from the original bill in conference committee in the regular session. The supplementary appropriation, which has been approved by the Governor, means that there will be available for this work in Texas \$75,000 a year for the present biennium. This sum will be increased by probably \$35,000 to \$40,000 from local cooperative sources, plus the Federal allotment. There has been a steady increase in demands for the Bureau's services throughout the infested parts of the State, which embrace at least two-thirds.

Control Cougars in Deer Range.--B. N. Kimball, employed to work in the country south of Marathon, Tex., in the upper part of the Big Bend, was successful in catching four mountain lions during October. This work is being carried on primarily for the protection of black-tailed deer, which have been suffering severely from the depredations of these predators.

Attributes Turkey, Deer Increase to Predator Control.--Caesar Kleberg, of the King Ranch, a member of the Texas Game, Fish, and Oyster Commission, recently wrote the Bureau he has the best crop of young turkeys and deer in the history of the ranch and that he attributes this largely to the destruction of coyotes and bobcats by E. L. Homan and Ira Wood, Survey hunters. Homan depends entirely upon traps. Wood, who hunts with dogs, is reported to have the best pack of trained cat and lion dogs in the State. The King Ranch, interested in this work as game conservation, is paying half the cost of the two hunters mentioned.

Control Rats in Hawaiian Islands.--On November 21, F. E. Garlough, director of the Control Methods Research Laboratory at Denver, and H. J. Spencer, Control methods research investigator, sailed from San Francisco for the Hawaiian Islands, to cooperate in the inauguration of a rat-abatement program in that Territory. An allotment of \$110,000 has been set aside from sugar processing taxes for the prosecution of this campaign during the coming year. Mr. Garlough will cooperate with officials in Hawaii with reference to methods of control and with reference to organizing the control campaigns for the relief of pineapple, sugarcane, and nut growers. Mr. Spencer will spend about a year in Hawaii in connection with his control methods research.

Bulb Plantings Protected from Moles and Pocket Gophers.---A letter from Brookings, Oreg., states that information given by Survey field men has enabled the correspondent to keep rodents and moles down to a point where no real damage has occurred over a period of more than five years.

Conference of Control Workers Held.---Early in October, W. M. Rush, regional director, held a conference of district agents and assistants in Oregon and Washington, at Portland, Oreg.

Detailed to Washington.---Ben E. Foster, district agent, of Phoenix, Ariz., has been detailed to the Washington office for November and December to assist in routine office work and to become more familiar with headquarters operations of the Bureau.

Adolph S. Hamm was also early in December detailed to the Washington office for two months for similar purposes.

Harold O. Crawley, who has been detailed to the Washington office for some time to assist with the routine work in the Section of Predator and Rodent Control, left on October 29 for Arizona, where he will assist with field operations in rodent control before returning to Pocatello early in the spring.

Make Changes in Control Work Supervision.---Effective October 1, supervision of predator and rodent control in Nebraska was transferred from the jurisdiction of Louis Knowles to that of Adolph S. Hamm, district agent at Cheyenne, Wyo., and North Dakota has been added to Mr. Knowles' territory. Mr. Knowles now has charge of the work in North Dakota and South Dakota, and Mr. Hamm in Wyoming and Nebraska.

Report Quail Migrations in Virginia.---Two major local migrations of quail have been reported to the Bureau by George B. Lay, district agent stationed at Raleigh, N. C. One migration was reported by Mr. Lay as having taken place at Blacksburg, Va., on the campus of Virginia Polytechnic Institute on October 12, when the campus lands were filled with the birds. Quail were reported as plentiful all day on house tops, in trees, and on telephone poles and wires. Several residents of Blacksburg reported the unusual event when Mr. Lay visited the college town recently. A similar migration was reported in the Roanoke (Va.) Times as having taken place at Roanoke about two weeks before the Blacksburg migration. C. O. Handley, in charge of the new Biological Survey experimental work at Virginia Polytechnic Institute, said that he did not know of any other such quail migration since the days of Audubon, who witnessed a wholesale migration from one side of the Mississippi River to the other. Mr. Handley knew of no local factor that might have caused the migration.

WPA Project Approved in Utah.---District Agent George E. Holman has advised the Bureau that a WPA project has been approved in Utah for the control of predators. The approved project calls for the employment of additional hunters, the work to be conducted under the direct supervision of Mr. Holman and his assistants. This program will be carried on largely by the use of traps, and a large percentage of the men employed will be those who have previously worked under Mr. Holman's supervision.

Otto E. Steph1, better known to the employees of the Bureau as "Steve", died at Rochester, Minn., on November 22, after a comparatively short illness. Mr. Steph1 was first employed in the Bureau on a temporary assignment in Idaho during the summer of 1919, at which time he was regularly employed in the Department of Interior. He later received a permanent appointment with the Bureau on November 3, 1922. A floral piece was sent by Mr. Steph1's associates in the Washington office to La Crosse, Wis., where funeral services were held on November 25.

British Empire Designates National Rat Week.--An article in the English magazine, "Game and Gun", for November 1935, entitled "The Rat and Its Destruction", indicates that the week of November 4 to 9 was a British anti-rat week. This article sets forth four primary methods of rat control--hunting, trapping, poisoning, and gassing. It also discusses the migration of rats from fields to buildings during fall months and the fact that red squill is recommended in England for rat control. This coincides with the recommendations made by the Survey for the control of rats in the United States.

Mountain Lions Captured for New York Zoo.--Governor B. B. Mauer, of Arizona, recently called on the Bureau for assistance in complying with a request made by former Governor Alfred E. Smith, of New York, for animals from Arizona for a new zoo at Prospect Park, New York. As a result, 2 mountain lion kittens were caught by Hunter Giles Goswick, on Pine Mountain, near Prescott, Ariz., in November and forwarded to Governor Smith by express. Efforts will be made later to furnish the zoo with other animals.

